

TENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C.20231
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 01 December 1999 (01.12.99)	
International application No. PCT/AU99/00308	Applicant's or agent's file reference
International filing date (day/month/year) 23 April 1999 (23.04.99)	Priority date (day/month/year) 24 April 1998 (24.04.98)
Applicant BOGATEZ, Edwin, Lorenzo	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

10 November 1999 (10.11.99)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No.: (41-22) 740.14.35</p>	<p>Authorized officer</p> <p>S. Mafla</p> <p>Telephone No.: (41-22) 338.83.38</p>
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU 99/00308

A. CLASSIFICATION OF SUBJECT MATTER												
Int Cl ⁶ : B31B 1/86, B65B 61/14, B65D 25/28, 33/12												
According to International Patent Classification (IPC) or to both national classification and IPC												
B. FIELDS SEARCHED												
Minimum documentation searched (classification system followed by classification symbols) IPC : B31B 1/74, 1/86, 1/00, B65B 61/14, 61/00, B65D 25/28, 33/06, 33/12, 30/02												
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched -												
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) WPAT : HANDLE# OR CORD#; APERTURE# OR HOLE#; AGLET# OR BARB#												
C. DOCUMENTS CONSIDERED TO BE RELEVANT												
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.										
X	US 4191232 A (SZABO) 4 March 1980 whole document	2, 4-11										
X	EP 673848 A (ANGLO AQUARIUM PLANT COMPANY LIMITED) abstract, figure 2	2, 4-7, 10, 11										
X	WO 92/02423 A (THE PROCTER AND GAMBLE COMPANY) 20 February 1992 figures 3-7, abstract	2, 4-7, 10, 11										
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C												
<input checked="" type="checkbox"/> See patent family annex												
<p>* Special categories of cited documents:</p> <table border="0"><tr><td>"A" document defining the general state of the art which is not considered to be of particular relevance</td><td>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td></tr><tr><td>"E" earlier application or patent but published on or after the international filing date</td><td>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td></tr><tr><td>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td><td>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td></tr><tr><td>"O" document referring to an oral disclosure, use, exhibition or other means</td><td>"&" document member of the same patent family</td></tr><tr><td>"P" document published prior to the international filing date but later than the priority date claimed</td><td></td></tr></table>			"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	"P" document published prior to the international filing date but later than the priority date claimed	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention											
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone											
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art											
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family											
"P" document published prior to the international filing date but later than the priority date claimed												
Date of the actual completion of the international search 8 June 1999		Date of mailing of the international search report 16 JUN 1999										
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200 WODEN ACT 2606 AUSTRALIA Facsimile No.: (02) 6285 3929		Authorized officer JAGDISH WABLE Telephone No.: (02) 6283 2638										

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU 99/00308

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	US 5810242 A (CAHILL et al) 22 September 1998 figure 1	2, 4-11
A	AU 30841/97 A (HANDLE TEC PTY LTD) whole document	1-11

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU 99/00308

A. CLASSIFICATION OF SUBJECT MATTER		
Int Cl ⁶ : B31B 1/86, B65B 61/14, B65D 25/28, 33/12		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) IPC : B31B 1/74, 1/86, 1/00, B65B 61/14, 61/00, B65D 25/28, 33/06, 33/12, 30/02		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched -		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) WPAT : HANDLE# OR CORD#; APERTURE# OR HOLE#; AGLET# OR BARB#		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4191232 A (SZABO) 4 March 1980 whole document	2, 4-11
X	EP 673848 A (ANGLO AQUARIUM PLANT COMPANY LIMITED) abstract, figure 2	2, 4-7, 10, 11
X	WO 92/02423 A (THE PROCTER AND GAMBLE COMPANY) 20 February 1992 figures 3-7, abstract	2, 4-7, 10, 11
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 8 June 1999		Date of mailing of the international search report 16 JUN 1999
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200 WODEN ACT 2606 AUSTRALIA Facsimile No.: (02) 6285 3929		Authorized officer JAGDISH WABLE Telephone No.: (02) 6283 2638

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU 99/00308

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

See supplementary page.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1-11

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU 99/00308

Box II continued

The international application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked to form a single general inventive concept. In coming to this conclusion the International Searching Authority has found that there are two inventions:

1. Claims 1-11 directed to a method of attaching a flexible cord handle to a bag using an obstruction member having a cavity which receives an aglet of the cord. It is considered that the obstruction member comprises a first "special technical feature".
2. Claims 12 and 13 directed to a method of attaching flexible cord handles to bags wherein the bag is maintained with a mouth in an open configuration by means of the application of a partial vacuum to at least one side wall of the bag. The application of the partial vacuum for attaching the cord to the bag is considered to comprise a second separate "special technical feature".
3. Claim 14 directed to a method of fitting of a cardboard base insert into a bag after opening of the bag mouth by means of the application of a partial vacuum to at least one side wall of the bag along a pathway whereafter the base insert is placed into the bag and affixed to the interior of the bottom of the bag by adhesive pre-applied to the bottom of the bag and/or to the underside of the base insert. The attachment of the insert to the bottom of the bag by an adhesive is considered as a third "special technical feature".

Since the above-mentioned groups of claims do not share any of the technical features identified, a "technical relationship" between the inventions, as defined in PCT rule 13.2 does not exist. Accordingly the international application does not relate to one invention or to a single inventive concept.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/AU 99/00308

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report				Patent Family Member			
EP	673848	GB	2288354				
WO	92/02423	AU	84145/91	CN	1061005	EP	542873
		US	5095683	US	5222931		
AU	30841/97	WO	97/48550	EP	907499		

END OF ANNEX

PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference
(if desired) (12 characters maximum)

Box No. I TITLE OF INVENTION

BAG HANDLE AND METHOD AND MEANS OF ATTACHMENT

Box No. II APPLICANT

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

HANDLETEC PTY LTD
51-57 Carlotta Street
Artarmon, New South Wales, 2064
AUSTRALIA

☐ This person is also inventor.

Telephone No.

Facsimile No.

Teleprinter No.

State (that is, country) of nationality:

AU

State (that is, country) of residence:

AU

This person is applicant for the purposes of:



all designated States



all designated States except the United States of America



the United States of America only



the States indicated in the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

BOGATEZ, Edwin Lorenzo
51-57 Carlotta Street
Artarmon, New South Wales, 2064
AUSTRALIA

This person is:

☐ applicant only☒ applicant and inventor☐ inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:

AU

State (that is, country) of residence:

AU

This person is applicant for the purposes of:



all designated States



all designated States except the United States of America



the United States of America only



the States indicated in the Supplemental Box

☐ Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE: OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:



agent



common representative

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

SCHILLING, Fred
SMEETON, Anthony Richard
COWLE, Anthony John
DAVIES COLLISON CAVE
Level 10, 10 Barrack Street
Sydney, New South Wales, 2000
AUSTRALIA

Telephone No.

(612) 9262 2611

Facsimile No.

(612) 9262 1080

Teleprinter No.

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Sheet No. 2

Box No.V DESIGNATION OF STATES

The following designations are hereby made under Rule 4.9(a) (mark the applicable check-boxes; at least one must be marked):

Regional Patent

- ☒ AP ARIPO Patent: GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, SD Sudan, SZ Swaziland, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT
- ☒ EA Eurasian Patent: AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☒ EP European Patent: AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☒ OA OAPI Patent: BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroun, GA Gabon, GN Guinea, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (if other kind of protection or treatment desired, specify on dotted line)

National Patent (if other kind of protection or treatment desired, specify on dotted line):

- | | |
|--|--|
| <input checked="" type="checkbox"/> AL Albania | <input checked="" type="checkbox"/> LS Lesotho |
| <input checked="" type="checkbox"/> AM Armenia | <input checked="" type="checkbox"/> LT Lithuania |
| <input checked="" type="checkbox"/> AT Austria | <input checked="" type="checkbox"/> LU Luxembourg |
| <input checked="" type="checkbox"/> AU Australia | <input checked="" type="checkbox"/> LV Latvia |
| <input checked="" type="checkbox"/> AZ Azerbaijan | <input checked="" type="checkbox"/> MD Republic of Moldova |
| <input checked="" type="checkbox"/> BA Bosnia and Herzegovina | <input checked="" type="checkbox"/> MG Madagascar |
| <input checked="" type="checkbox"/> BB Barbados | <input checked="" type="checkbox"/> MK The former Yugoslav Republic of Macedonia |
| <input checked="" type="checkbox"/> BG Bulgaria | <input checked="" type="checkbox"/> MN Mongolia |
| <input checked="" type="checkbox"/> BR Brazil | <input checked="" type="checkbox"/> MW Malawi |
| <input checked="" type="checkbox"/> BY Belarus | <input checked="" type="checkbox"/> MX Mexico |
| <input checked="" type="checkbox"/> CA Canada | <input checked="" type="checkbox"/> NO Norway |
| <input checked="" type="checkbox"/> CH and LI Switzerland and Liechtenstein | <input checked="" type="checkbox"/> NZ New Zealand |
| <input checked="" type="checkbox"/> CN China | <input checked="" type="checkbox"/> PL Poland |
| <input checked="" type="checkbox"/> CU Cuba | <input checked="" type="checkbox"/> PT Portugal |
| <input checked="" type="checkbox"/> CZ Czech Republic | <input checked="" type="checkbox"/> RO Romania |
| <input checked="" type="checkbox"/> DE Germany | <input checked="" type="checkbox"/> RU Russian Federation |
| <input checked="" type="checkbox"/> DK Denmark | <input checked="" type="checkbox"/> SD Sudan |
| <input checked="" type="checkbox"/> EE Estonia | <input checked="" type="checkbox"/> SE Sweden |
| <input checked="" type="checkbox"/> ES Spain | <input checked="" type="checkbox"/> SG Singapore |
| <input checked="" type="checkbox"/> FI Finland | <input checked="" type="checkbox"/> SI Slovenia |
| <input checked="" type="checkbox"/> GB United Kingdom | <input checked="" type="checkbox"/> SK Slovakia |
| <input checked="" type="checkbox"/> GE Georgia | <input checked="" type="checkbox"/> SL Sierra Leone |
| <input checked="" type="checkbox"/> GH Ghana | <input checked="" type="checkbox"/> TJ Tajikistan |
| <input checked="" type="checkbox"/> GM Gambia | <input checked="" type="checkbox"/> TM Turkmenistan |
| <input checked="" type="checkbox"/> GW Guinea-Bissau | <input checked="" type="checkbox"/> TR Turkey |
| <input checked="" type="checkbox"/> HR Croatia | <input checked="" type="checkbox"/> TT Trinidad and Tobago |
| <input checked="" type="checkbox"/> HU Hungary | <input checked="" type="checkbox"/> UA Ukraine |
| <input checked="" type="checkbox"/> ID Indonesia | <input checked="" type="checkbox"/> UG Uganda |
| <input checked="" type="checkbox"/> IL Israel | <input checked="" type="checkbox"/> US United States of America |
| <input checked="" type="checkbox"/> IS Iceland | <input checked="" type="checkbox"/> UZ Uzbekistan |
| <input checked="" type="checkbox"/> JP Japan | <input checked="" type="checkbox"/> VN Viet Nam |
| <input checked="" type="checkbox"/> KE Kenya | <input checked="" type="checkbox"/> YU Yugoslavia |
| <input checked="" type="checkbox"/> KG Kyrgyzstan | <input checked="" type="checkbox"/> ZW Zimbabwe |
| <input checked="" type="checkbox"/> KP Democratic People's Republic of Korea | |
| <input checked="" type="checkbox"/> KR Republic of Korea | |
| <input checked="" type="checkbox"/> KZ Kazakhstan | |
| <input checked="" type="checkbox"/> LC Saint Lucia | |
| <input checked="" type="checkbox"/> LK Sri Lanka | |
| <input checked="" type="checkbox"/> LR Liberia | |

Check-boxes reserved for designating States (for the purposes of a national patent) which have become party to the PCT after issuance of this sheet:

- ☒ AE United Arab Emirates ☒ GD Grenada
- ☒ ZA South Africa ☒ IN India

Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation of a designation consists of the filing of a notice specifying that designation and the payment of the designation and confirmation fees. Confirmation must reach the receiving Office within the 15-month time limit.)

Sheet No. ...3...

Box No. VI PRIORITY CLAIM

Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application: country	regional application: regional Office	international application: receiving Office
item (1) 24/04/98	PP 3176	AU	AU	AU
item (2) 10/07/98	PP 4605	AU	AU	AU
item (3) 01/12/98	PP 7424	AU	AU	AU

☒ The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office) identified above as item(s): (1)

* Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box.

Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA) (if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):

ISA / AU

Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority):
Date (day/month/year) Number Country (or regional Office)

Box No. VIII CHECK LIST: LANGUAGE OF FILING

This international application contains the following number of sheets:

request : 3
description (excluding
sequence listing part) : 14
claims : 3
abstract : 1
drawings : 12
sequence listing part
of description :
Total number of sheets : 33

This international application is accompanied by the item(s) marked below:

- ☒ fee calculation sheet
- ☐ separate signed power of attorney
- ☐ copy of general power of attorney; reference number, if any:
- ☐ statement explaining lack of signature
- ☐ priority document(s) identified in Box No. VI as item(s):
- ☐ translation of international application into (language):
- ☐ separate indications concerning deposited microorganism or other biological material
- ☐ nucleotide and/or amino acid sequence listing in computer readable form
- ☐ other (specify):

Figure of the drawings which should accompany the abstract: 1

Language of filing of the international application: ENGLISH

Box No. IX SIGNATURE OF APPLICANT OR AGENT

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).

FRED SCHILLING

Agent for the Applicant

For receiving Office use only

1. Date of actual receipt of the purported international application:	2. Drawings: <input type="checkbox"/> received: <input type="checkbox"/> not received:
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:	
4. Date of timely receipt of the required corrections under PCT Article 11(2):	
5. International Searching Authority (if two or more are competent): ISA /	
6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid.	

Date of receipt of the record copy by the International Bureau:

For International Bureau use only

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 726771/FS	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/AU 99/00308	International filing date (day/month/year) 23 April 1999	(Earliest) Priority Date (day/month/year) 24 April 1998
Applicant HANDLETEC PTY LTD et al		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 7 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☒ Unity of invention is lacking (See Box II).

4. With regard to the title, ☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract, ☐ the text is approved as submitted by the applicant

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No. 2

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure

☒ because this figure better characterizes the invention

☐ None of the figures

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU 99/00308

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

See supplementary page.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1-11

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU 99/00308

Box III **TEXT OF THE ABSTRACT** (Continuation of item 5 of the first sheet)

A handle (30, 40) applying method and means employs heating and deforming an aglet (32) to form or fusing an end stop on a bag cord after fitting the cord through a handle locating aperture (31, 32, 41, 42) in a bag wall (15) or fitting an aglet (32) having a resiliently movable barb (64) or detent on the end of a bag cord before passing the aglet through a handle locating aperture which causes the barb (64) or detent to move toward the aglet as it passes through the aperture and which barb (64) or detent returns to its rest position to restrain the cord from removal through the aperture in a reverse direction to that of fitment of the cord end.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU 99/00308

A. CLASSIFICATION OF SUBJECT MATTER

Int Cl⁶: B31B 1/86, B65B 61/14, B65D 25/28, 33/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC : B31B 1/74, 1/86, 1/00, B65B 61/14, 61/00, B65D 25/28, 33/06, 33/12, 30/02

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
-

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPAT : HANDLE# OR CORD#; APERTURE# OR HOLE#; AGLET# OR BARB#

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4191232 A (SZABO) 4 March 1980 whole document	2, 4-11
X	EP 673848 A (ANGLO AQUARIUM PLANT COMPANY LIMITED) abstract, figure 2	2, 4-7, 10, 11
X	WO 92/02423 A (THE PROCTER AND GAMBLE COMPANY) 20 February 1992 figures 3-7, abstract	2, 4-7, 10, 11

☒ Further documents are listed in the
continuation of Box C

☒ See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search
8 June 1999

Date of mailing of the international search report
16 JUN 1999

Name and mailing address of the ISA/AU
AUSTRALIAN PATENT OFFICE
PO BOX 200
WODEN ACT 2606
AUSTRALIA
Facsimile No.: (02) 6285 3929

Authorized officer

JAGDISH WABLE
Telephone No.: (02) 6283 2638

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU 99/00308

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	US 5810242 A (CAHILL et al) 22 September 1998 figure 1	2, 4-11
A	AU 30841/97 A (HANDLE TEC PTY LTD) whole document	1-11

International application No.
PCT/AU 99/00308

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report				Patent Family Member			
EP	673848	GB	2288354				
WO	92/02423	AU	84145/91	CN	1061005	EP	542873
		US	5095683	US	5222931		
AU	30841/97	WO	97/48550	EP	907499		

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU 99/00308

Box II continued

The international application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked to form a single general inventive concept. In coming to this conclusion the International Searching Authority has found that there are two inventions:

1. Claims 1-11 directed to a method of attaching a flexible cord handle to a bag using an obstruction member having a cavity which receives an aglet of the cord. It is considered that the obstruction member comprises a first "special technical feature".
2. Claims 12 and 13 directed to a method of attaching flexible cord handles to bags wherein the bag is maintained with a mouth in an open configuration by means of the application of a partial vacuum to at least one side wall of the bag. The application of the partial vacuum for attaching the cord to the bag is considered to comprise a second separate "special technical feature".
3. Claim 14 directed to a method of fitment of a cardboard base insert into a bag after opening of the bag mouth by means of the application of a partial vacuum to at least one side wall of the bag along a pathway whereafter the base insert is placed into the bag and affixed to the interior of the bottom of the bag by adhesive pre-applied to the bottom of the bag and/or to the underside of the base insert. The attachment of the insert to the bottom of the bag by an adhesive is considered as a third "special technical feature".

Since the above-mentioned groups of claims do not share any of the technical features identified, a "technical relationship" between the inventions, as defined in PCT rule 13.2 does not exist. Accordingly the international application does not relate to one invention or to a single inventive concept.

The demand must be filed directly with the competent International Preliminary Examining Authority or, if two or more Authorities are competent, with the one chosen by the applicant. The full name or two-letter code of that Authority may be indicated by the applicant on the line below:

IPEA/

PCT

DEMAND

CHAPTER II

under Article 31 of the Patent Cooperation Treaty:
The undersigned requests that the international application specified below be the subject of international preliminary examination according to the Patent Cooperation Treaty and hereby elects all eligible States (except where otherwise indicated).

For International Preliminary Examining Authority use only	
Identification of IPEA	Date of receipt of DEMAND
Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION	
International application No. PCT/AU99/00308	Applicant's or agent's file reference 726771 International filing date (day/month/year) 23 April 1999 (23/4/99) (Earliest) Priority date (day/month/year) 24 April 1998 (24/4/98)
Title of invention BAG HANDLE AND METHOD AND MEANS OF ATTACHMENT	
Box No. II APPLICANT(S)	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)	
HANDLETEC PTY LTD 51-57 Carlotta Street Artarmon, New South Wales, 2064 Australia	Telephone No.:
	Facsimile No.:
	Teleprinter No.:
State (that is, country) of nationality: AU	State (that is, country) of residence: AU
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)	
BOGATEZ, Edwin Lorenzo 51-57 Carlotta Street Artarmon, New South Wales, 2064 Australia	
State (that is, country) of nationality: AU	State (that is, country) of residence: AU
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)	
State (that is, country) of nationality:	State (that is, country) of residence:
<input type="checkbox"/> Further applicants are indicated on a continuation sheet.	

Sheet No. 2.

International application No.
PCT/AU99/00308**Box No. III AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE**

The following person is ☒ agent ☐ common representative
 and ☒ has been appointed earlier and represents the applicant(s) also for international preliminary examination.
☐ is hereby appointed and any earlier appointment of (an) agent(s)/common representative is hereby revoked.
☐ is hereby appointed, specifically for the procedure before the International Preliminary Examining Authority, in addition to the agent(s)/common representative appointed earlier.

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

SCHILLING, Frederick Lyle
 SMEETON, Anthony Richard
 COWLE, Anthony John
 DAVIES, COLLISON CAVE
 Level 10, 10 Barrack Street
 Sydney, New South Wales, 2000
 Australia

Telephone No.:

(02) 9262 2611

Facsimile No.:

(02) 9262 1080

Teleprinter No.:

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Box No. IV BASIS FOR INTERNATIONAL PRELIMINARY EXAMINATION

Statement concerning amendments:*

1. The applicant wishes the international preliminary examination to start on the basis of:

☒ the international application as originally filed
 the description ☒ as originally filed
☐ as amended under Article 34

the claims ☒ as originally filed
☐ as amended under Article 19 (together with any accompanying statement)
☐ as amended under Article 34

the drawings ☒ as originally filed
☐ as amended under Article 34

2. ☐ The applicant wishes any amendment to the claims under Article 19 to be considered as reversed.

3. ☐ The applicant wishes the start of the international preliminary examination to be postponed until the expiration of 20 months from the priority date unless the International Preliminary Examining Authority receives a copy of any amendments made under Article 19 or a notice from the applicant that he does not wish to make such amendments (Rule 69.1(d)). (This check-box may be marked only where the time limit under Article 19 has not yet expired.)

* Where no check-box is marked, international preliminary examination will start on the basis of the international application as originally filed or, where a copy of amendments to the claims under Article 19 and/or amendments of the international application under Article 34 are received by the International Preliminary Examining Authority before it has begun to draw up a written opinion or the international preliminary examination report, as so amended.

Language for the purposes of international preliminary examination: English

☒ which is the language in which the international application was filed.
☐ which is the language of a translation furnished for the purposes of international search.
☐ which is the language of publication of the international application.
☐ which is the language of the translation (to be) furnished for the purposes of international preliminary examination.

Box No. V ELECTION OF STATES

The applicant hereby elects all eligible States (that is, all States which have been designated and which are bound by Chapter II of the PCT)
 excluding the following States which the applicant wishes not to elect:

Sheet No. 3.

International application No.
PCT/AU99/00308

Box No. VI CHECK LIST

The demand is accompanied by the following elements, in the language referred to in Box No. IV, for the purposes of international preliminary examination:

- | | | | |
|--|---|---------|--------|
| 1. translation of international application | : | _____ | sheets |
| 2. amendments under Article 34 | : | _____ | sheets |
| 3. copy (or, where required, translation) of amendments under Article 19 | : | _____ | sheets |
| 4. copy (or, where required, translation) of statement under Article 19 | : | _____ | sheets |
| 5. letter | : | _____ | sheets |
| 6. other (specify) | : | 1 _____ | sheets |

For International Preliminary Examining Authority use only

received not received

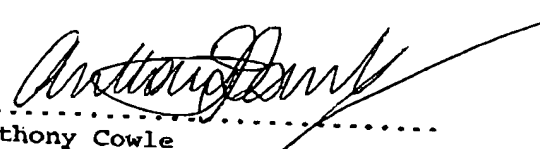
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

The demand is also accompanied by the item(s) marked below:

- | | |
|--|---|
| 1. <input checked="" type="checkbox"/> fee calculation sheet | 4. <input type="checkbox"/> statement explaining lack of signature |
| 2. <input type="checkbox"/> separate signed power of attorney | 5. <input type="checkbox"/> nucleotide and or amino acid sequence listing in computer readable form |
| 3. <input type="checkbox"/> copy of general power of attorney; reference number, if any: | 6. <input type="checkbox"/> other (specify): |

Box No. VII SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand).


.....
Anthony Cowle
(Agent)

For International Preliminary Examining Authority use only

1. Date of actual receipt of DEMAND:

2. Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b):

3. ☐ The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5, below, does not apply.

☐ The applicant has been informed accordingly.

4. ☐ The date of receipt of the demand is WITHIN the period of 19 months from the priority date as extended by virtue of Rule 80.5.

5. ☐ Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSED pursuant to Rule 82.

For International Bureau use only

Demand received from IPEA on:

PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 726771/FS	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International application No. PCT/AU99/00308	International filing date (day/month/year) 23 April 1999	Priority Date (day/month/year) 24 April 1998
International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁷ B31B 1/86, B65B 61/14, B65D 25/28, 33/12		
Applicant HANDLETEC PTY LTD et al		

1.	This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.																
2.	This REPORT consists of a total of 5 sheets, including this cover sheet. <input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of 17 sheet(s).																
3.	This report contains indications relating to the following items: <table style="width: 100%; margin-top: 10px;"> <tr> <td style="width: 5%;">I</td> <td><input checked="" type="checkbox"/> Basis of the report</td> </tr> <tr> <td>II</td> <td><input type="checkbox"/> Priority</td> </tr> <tr> <td>III</td> <td><input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td></td> <td><input type="checkbox"/> Lack of unity of invention</td> </tr> <tr> <td>V</td> <td><input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td>VI</td> <td><input type="checkbox"/> Certain documents cited</td> </tr> <tr> <td>VII</td> <td><input type="checkbox"/> Certain defects in the international application</td> </tr> <tr> <td>VIII</td> <td><input type="checkbox"/> Certain observations on the international application</td> </tr> </table>	I	<input checked="" type="checkbox"/> Basis of the report	II	<input type="checkbox"/> Priority	III	<input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability		<input type="checkbox"/> Lack of unity of invention	V	<input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	VI	<input type="checkbox"/> Certain documents cited	VII	<input type="checkbox"/> Certain defects in the international application	VIII	<input type="checkbox"/> Certain observations on the international application
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VII	<input type="checkbox"/> Certain defects in the international application																
VIII	<input type="checkbox"/> Certain observations on the international application																

Date of submission of the demand 10 November 1999	Date of completion of the report 1 September 2000
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer JAGDISH WABLE Telephone No. (02) 6283 2638

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/AU99/00308

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed.
- ☒ the description, pages , as originally filed,
 pages , filed with the demand,
 pages 1-14, received on 2 August 2000 with the letter of 28 July 2000
- ☒ the claims, pages , as originally filed,
 pages , as amended (together with any statement) under Article 19,
 pages , filed with the demand,
 pages 15-17, received on 2 August 2000 with the letter of 28 July 2000
- ☒ the drawings, pages 1/12-12/12, as originally filed,
 pages , filed with the demand,
 pages , received on with the letter of
- ☐ the sequence listing part of the description:
 pages , as originally filed
 pages , filed with the demand
 pages , received on with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item. These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, was on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4. ☒ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/AU99/00308

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be nonobvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos: 12-14

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for said claim Nos.

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/AU99/00308

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:
- ☐ restricted the claims.
 - ☐ paid additional fees.
 - ☐ paid additional fees under protest.
 - ☐ neither restricted nor paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is
- ☐ complied with.
 - ☒ not complied with for the following reasons:

The international application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept. In coming to this conclusion the International Searching Authority has found that there are different inventions as follows:

1. Claims 1-11 are directed to a method of attaching a flexible cord handle to a bag using an obstruction member having a cavity, which receives an aglet of the cord. It is considered that the obstruction member comprises a first "special technical feature".
2. Claims 12 and 13 are directed to a method of attaching flexible cord handles to bags wherein the bag is maintained with a mouth in an open configuration by means of the application of the partial vacuum for attaching the cord to the bag. It is considered that the application of the partial vacuum comprises a second "special technical feature".
3. Claim 14 is directed to a method of fitting of a cardboard base insert into a bag after opening of the bag mouth by means of the application of a partial vacuum to at least one side wall of the bag along a pathway whereafter the base insert is placed into the bag and/or to the underside of the base insert. The attachment of the insert to the bottom of the bag by an adhesive is considered as a third "special technical feature".

Since the abovementioned groups of claims do not share any of the technical features identified, a "technical relationship" between the inventions, as defined in PCT rule 13.2 does not exist. Accordingly the international application does not relate to one invention or to a single inventive concept, a priori.

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:
- ☐ all parts.
 - ☒ the parts relating to claims Nos. 1-11

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/AU99/00308

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims 1-11	YES
	Claims	NO
Inventive step (IS)	Claims 1-11	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-11	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)

The claimed invention is novel, involves an inventive step and is industrially applicable. None of the prior art documents discloses use of an aglet for attaching a flexible cord handle to a bag.

PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY EXAMINATION REPORT

RECD 19 SEP 2000

PCT

(PCT Article 36 and Rule 70)

15

Applicant's or agent's file reference 726771/FS	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).	
International application No. PCT/AU99/00308	International filing date (<i>day/month/year</i>) 23 April 1999	Priority Date (<i>day/month/year</i>) 24 April 1998
International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁷ B31B 1/86, B65B 61/14, B65D 25/28, 33/12		
Applicant HANDLETEC PTY LTD et al		

1.	This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.																
2.	This REPORT consists of a total of 5 sheets, including this cover sheet. <input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of 17 sheet(s) .																
3.	This report contains indications relating to the following items: <table style="width: 100%; margin-top: 10px;"> <tr> <td style="width: 5%;">I</td> <td><input checked="" type="checkbox"/> Basis of the report</td> </tr> <tr> <td>II</td> <td><input type="checkbox"/> Priority</td> </tr> <tr> <td>III</td> <td><input checked="" type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td>IV</td> <td><input checked="" type="checkbox"/> Lack of unity of invention</td> </tr> <tr> <td>V</td> <td><input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td>VI</td> <td><input type="checkbox"/> Certain documents cited</td> </tr> <tr> <td>VII</td> <td><input type="checkbox"/> Certain defects in the international application</td> </tr> <tr> <td>VIII</td> <td><input type="checkbox"/> Certain observations on the international application</td> </tr> </table>	I	<input checked="" type="checkbox"/> Basis of the report	II	<input type="checkbox"/> Priority	III	<input checked="" type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	IV	<input checked="" type="checkbox"/> Lack of unity of invention	V	<input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	VI	<input type="checkbox"/> Certain documents cited	VII	<input type="checkbox"/> Certain defects in the international application	VIII	<input type="checkbox"/> Certain observations on the international application
I	<input checked="" type="checkbox"/> Basis of the report																
II	<input type="checkbox"/> Priority																
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VI	<input type="checkbox"/> Certain documents cited																
VII	<input type="checkbox"/> Certain defects in the international application																
VIII	<input type="checkbox"/> Certain observations on the international application																

Date of submission of the demand 10 November 1999	Date of completion of the report 1 September 2000
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer JAGDISH WABLE Telephone No. (02) 6283 2638

I. Basis of the report

1. With regard to the **elements** of the international application:*
- ☐ the international application as originally filed.
- ☒ the description, pages , as originally filed,
pages , filed with the demand,
pages 1-14, received on 2 August 2000 with the letter of 28 July 2000
- ☒ the claims, pages , as originally filed,
pages , as amended (together with any statement) under Article 19,
pages , filed with the demand,
pages 15-17, received on 2 August 2000 with the letter of 28 July 2000
- ☒ the drawings, pages 1/12-12/12, as originally filed,
pages , filed with the demand,
pages , received on with the letter of
- ☐ the sequence listing part of the description:
pages , as originally filed
pages , filed with the demand
pages , received on with the letter of
2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language which is:
- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, was on the basis of the sequence listing:
- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished
4. ☒ The amendments have resulted in the cancellation of:
- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.
5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be nonobvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos: 12-14

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for said claim Nos.

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
- ☐ paid additional fees.
- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
- ☒ not complied with for the following reasons:

The international application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept. In coming to this conclusion the International Searching Authority has found that there are different inventions as follows:

1. Claims 1-11 are directed to a method of attaching a flexible cord handle to a bag using an obstruction member having a cavity, which receives an aglet of the cord. It is considered that the obstruction member comprises a first "special technical feature".
2. Claims 12 and 13 are directed to a method of attaching flexible cord handles to bags wherein the bag is maintained with a mouth in an open configuration by means of the application of the partial vacuum for attaching the cord to the bag. It is considered that the application of the partial vacuum comprises a second "special technical feature".
3. Claim 14 is directed to a method of fitment of a cardboard base insert into a bag after opening of the bag mouth by means of the application of a partial vacuum to at least one side wall of the bag along a pathway whereafter the base insert is placed into the bag and/or to the underside of the base insert. The attachment of the insert to the bottom of the bag by an adhesive is considered as a third "special technical feature".

Since the abovementioned groups of claims do not share any of the technical features identified, a "technical relationship" between the inventions, as defined in PCT rule 13.2 does not exist. Accordingly the international application does not relate to one invention or to a single inventive concept, a priori.

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☐ all parts.
- ☒ the parts relating to claims Nos. 1-11

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims 1-11	YES
	Claims	NO
Inventive step (IS)	Claims 1-11	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-11	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)

The claimed invention is novel, involves an inventive step and is industrially applicable. None of the prior art documents discloses use of an aglet for attaching a flexible cord handle to a bag.

BAG HANDLE AND METHOD AND MEANS OF ATTACHMENT

Introduction

The present invention relates to an apparatus for attaching a handle to a bag, and to a method of attaching a handle to a bag, in particular, but not only, to shopping bags with flexible cord handles.

Throughout this specification, unless the context requires otherwise, the word "comprise", or variations such as "comprises" or "comprising", will be understood to imply the inclusion of a stated element, integer or step, or group of elements, integers or steps, but not the exclusion of any other element, integer or step, or group of elements, integers or steps.

Description of the Prior Art

One type of bag relevant to the field of this invention, has a pair of flexible cord handles which pass through apertures in the bag, the free ends of the handles being tied to prevent disengagement of the handle from the bag. The flexible cord handle is comfortable to use, provides an aesthetically pleasing, high quality product and is easier to pack than rigid handled bags since the flexible cord will drape downwardly on bag when not in use.

Connecting such handles to the bag wall itself, however, creates certain difficulties. Normally the handle is manually passed through the apertures adjacent to the open upper end of the bag and the free ends tied in knots to prevent the handle from disengaging from the bag. This is a slow, expensive and labour intensive process, particularly if the handle is produced from a woven cord which has very little rigidity in the axial direction. Further, the possibility of human error cannot be discounted and if the knots are improperly tied, the handle may disengage from the bag altogether leading to damage of the bag contents.

Handles are also known to be fitted to bags via adhesive strips which makes their security dependant on the adhesion and tearability of the strip and/or bag.

The present invention is also concerned with subject matter disclosed in WO97/48550 and the contents of the specification of that published International patent application are also incorporated herein by reference.

In the art of bag manufacture and with particular regard to the application of flexible handles to bags as discussed in the aforementioned specifications, the mechanisation and automation of applying such handles has been highly desirable but hitherto unavailable. Apparatus which automates the manufacture of bags of the type depicted in Fig 1 of WO97/48550 have been in use for many years. The output of such equipment being a completed bag without handles attached which are later added to the bag by a manual operation. WO97/48550 discloses a method and means for integrating the application of handles to bags by eliminating manual handling.

Summary of the Invention

The present invention provides a method and apparatus for attaching flexible cord handles to bags or other receptacles which offers a useful alternative to known arrangements.

In a first aspect, the present invention provides a method for attaching a flexible cord handle to a bag comprising the steps of:

- forming at least one aperture through a bag wall;
- passing an end of a cord, having an aglet thereon, through the at least one aperture in the bag wall;
- providing at least one obstruction member with at least one cord receiving cavity therein adapted to receive the aglet of at least one cord;
- inserting the aglet into the cord receiving cavity of the obstruction member so that the aglet is located at least partially within the cavity; and
- bonding the aglet to the obstruction member.

In another form of this first aspect of the invention there is provided a method for attaching a flexible cord handle to a bag comprising the steps of:

- forming at least one aperture through a bag wall;
- passing an end of a cord, having an aglet thereon, through the at least one aperture without substantially deforming said aglet; and
- shaping the aglet to form an obstruction member which cannot pass through the aperture.

The size of the aperture formed through the bag wall is preferably only marginally larger than the largest transverse cross-sectional dimension of the aglet.

The obstruction member provided in accordance with the above method may be of many different forms. For example, the cord receiving cavity within the obstruction member may pass entirely through the obstruction member. In such embodiments, the aglet may be positioned some distance away from the end of the cord, and the cord may be passed through the obstruction member until the aglet is located at least partially within the obstruction member. Such an embodiment would provide a length of cord protruding from the obstruction member which may be aesthetically desirable or serve some further useful function.

In other embodiments the obstruction member may provide advertising, for example a company logo printed on the exposed side of the member, or the member may be shaped for the purposes of advertising.

The step of bonding the aglet to the obstruction member may be performed by sufficiently heating some or all of the obstruction member to cause said bonding. In some embodiments, the step of heating the obstruction member may be performed using microwave heating techniques. In cases such as this the heating preferably occurs only within a small part of the obstruction member close to the aglet. Such a technique may be desirable for the purposes of speed, efficiency of production, or to minimise heat damage to the cord or aglet.

Alternatively, bonding between the aglet and the obstruction member may be effected by the use of an adhesive.

In some embodiments of the method of the invention, the obstruction member may have dimensions such that it can pass through the aperture of the bag. In such embodiments, the step of bonding the obstruction member to the aglet may occur before the step of passing the cord with aglet and attached obstruction member through the aperture. In order to attach the cord handle to the bag in such embodiments the method further includes the step of:

shaping the obstruction member such that its dimensions no longer permit it to pass through the aperture.

Furthermore, in a similar embodiment the aglet itself may function as the obstruction member. In cases such as this the aglet must be of a material such that it can provide a sufficiently sturdy obstruction once it is shaped while fixed to the cord so that its dimensions no longer permit it to pass through the aperture.

For such embodiments the step of shaping the obstruction member may be performed in such a way that the obstruction member provides advertising material or decoration, for example it may be deformed into the shape of a country or a company logo or such like.

A second aspect of the present invention provides an obstruction member for attaching a cord handle to a bag or other receptacle, the obstruction member comprising:

- a cord receiving cavity adapted to engage an agletted cord;
- said member being large enough, or adapted to be shaped so as to become large enough, to be unable to pass through an aperture in the bag wall; and
- being of a material adapted to be bonded to the aglet.

In embodiments where the obstruction member has dimensions such that it may pass through the aperture of the bag, it must be made of a material suitable for shaping to the required dimensions to not pass through the aperture.

The cord receiving cavity within the obstruction member may be a passageway entirely through the obstruction member.

In other embodiments the obstruction member may provide advertising, for example a company logo printed on the exposed side of the member, or the member may be shaped for the purposes of advertising.

A third aspect of the present invention provides an agletted cord. The cord may be made of any suitable flexible material. The agletted cord must be able to pass through a corresponding aperture in a bag wall.

The aglet must be sufficiently firmly attached to the cord to hold the cord in place when in use as a bag handle.

The aglet may function as an obstruction member. In such cases the aglet must be adapted to be shaped to dimensions to provide an effective obstruction.

Alternatively, the aglet must be made of a suitable material adapted to be bonded or adhered to an obstruction member already sized to be unable to pass through the aperture.

A fourth aspect of the present invention provides a bag or receptacle made according to the aforementioned method. Preferably the bag comprises a pair of flexible agletted cord handles adjacent to an open mouth of the bag.

The bag may comprise any suitable flexible material such as paper, light cardboard, plastic film or fabric.

Preferably, the bag comprises a pair of obstruction members for each handle, one obstruction member being fixed to each respective free end of the cord. Alternatively, the bag may include a single obstruction member for each flexible cord handle, such an obstruction member having a pair of cord receiving passageways adapted to be fixed to both free ends of each flexible cord handle.

The free end of the cord may be doubled back on itself before being inserted into the cord receiving passageway of the obstruction member, so that the free end of the cord and the handle are on the opposite side of the bag wall to the obstruction member.

As a matter of choice the obstruction member can be positioned on the interior or exterior side of the bag wall. If the obstruction member is decorative or includes additional advertising material, it may be desirable to have it positioned on an exterior side of a bag.

In a fifth aspect, the present invention provides a method for attaching a flexible cord handle to a bag including the steps of:

forming at least one aperture through a bag wall;

passing an end of a cord having an aglet thereon through said at least one aperture, said aglet comprising detent or barb means biased outwardly thereof which are movable inwardly as the aglet is passed through the aperture and which detent or barb means return to a position outwardly of the aglet to provide a stop preventing removal of the aglet from the aperture in the reverse direction to its passing through the aperture.

In a sixth aspect the present invention provides an aglet for fixing a cord handle to an aperture in a bag wall, said aglet including a longitudinal body part formed with outwardly biased barbs or detent means adapted to retract inwardly as the body part is moved through an aperture during which the barb or detent means contact the perimeter of the aperture.

In a seventh aspect, the present invention provides a method for attaching a flexible cord handle to a bag including the steps of:

forming at least one aperture through a bag wall;

passing an end of a cord having an aglet thereon, through said at least one aperture, said aglet comprising detent or barb means biased outwardly thereof;

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providing at least one obstruction member with at least one aglet receiving cavity therein adapted to receive the aglet of at least one cord, the obstruction member being sized to be unable to pass through the aperture;

inserting the aglet into the aglet receiving cavity of said member so that the detent or barb means are positioned to retain the obstruction member against removal from the aglet.

Preferably, an aglet of the fifth to seventh aspects of the present invention includes an integrally formed stopping surface spaced from the barb or detent means to abut the bag wall at the opposite side of the aperture to that of the barb or detent means when in situ.

The size of the aperture formed through the bag wall is preferably only marginally larger than the largest transverse cross-sectional dimension of the aglet.

The obstruction member provided in accordance with the seventh aspect method may be of many different forms. For example, the cord receiving cavity within the obstruction member may pass entirely through the obstruction member. In such embodiments, the aglet may be positioned some distance away from the end of the cord, and the cord may be passed through the obstruction member until the aglet is located at least partially within the obstruction member. Such an embodiment would provide a length of cord protruding from the obstruction member which may be aesthetically desirable or serve some further useful function.

In other embodiments the obstruction member may provide advertising, for example a company logo printed on the exposed side of the member, or the member may be shaped for the purposes of advertising.

In an eighth aspect the present invention provides a method for attaching flexible cord handles to bags or other receptacles wherein a bag is maintained with a mouth of the bag in an open configuration by means of the application of a partial vacuum to at least one side wall of the bag during which a flexible cord handle is applied to the bag.

Cord handles and their method of attachment applicable to the present invention are as disclosed herein and as proposed in WO97/48550. An alternative form of handle suited to this aspect of the present invention is one wherein a length of flexible cord handle is fitted with elongate stops which extend transversely of the cord and which stops can be aligned

parallel to the cord to be pushed through apertures in the side wall of the bag before returning to their transverse orientation relative to the cord and so act as a stop which prevents removal of the cord from the bag when the cord is fitted to the bag.

In a ninth aspect of the present invention there is provided a method of fitment of a cardboard or similar base insert into a bag after opening of the mouth of the bag by means of the application of a partial vacuum to at least one side wall of the bag while moving the bag along a pathway whereafter the base insert is placed into the bag and affixed to the interior of the bottom of the bag by adhesive pre-applied to the bottom of the bag and/or to the underside of the base insert. The fitment of a cardboard base into a bag in accord with this aspect of the invention can be readily integrated into the pathway for fitment of handles in accord with the eighth aspect described above with the adding of the base insert to the bag being provided before or after the location at which the handles are fitted or at the handle fitting station.

In one embodiment bags are carried along a pathway so that they are oriented with their mouths uppermost and suction applying means are positioned to contact the exterior of opposite sidewalls of the bag near to the mouth of the bag and draw the bag open via relative movement therebetween while holding a respective bag sidewall under partial vacuum force.

In a tenth aspect, the present invention provides a method and means for fitment of flexible cord handles with pre-applied end stops oriented transversely of the cords as described above. In this aspect a cord is fed to an applying station having means for orienting each end stop in parallel alignment with each adjacent cord section; each end stop then being fed through an aperture in a sidewall of a bag, the end stop being gripped at the opposite face of the sidewall and moved so that each end stop is released and oriented transverse to the axes of the cord on the opposite face of the sidewall, whereafter removal of the cord from the sidewall of the bag is prevented by the stop on the cord contacting the opposite face adjacent the aperture; the largest cross-sectional dimension of the aperture being less than the elongate dimension of the stop.

Brief Description of the Drawings

Embodiments of the invention will now be described by way of example with reference to the accompanying drawings in which:

Figure 1 is a perspective view of a conventional bag/receptacle;

Figure 2 is a perspective view of one embodiment of a bag according to the present invention;

Figure 3 is a cross-sectional view of an embodiment of the invention in which the obstruction member is larger than the aperture in the bag wall;

Figure 4a shows a cross-sectional view of an embodiment in which the obstruction member is smaller than the aperture in the bag wall;

Figure 4b shows a cross-sectional view in which the obstruction member has been deformed to become larger than the aperture in the bag wall;

Figure 5a shows a cross-sectional view of an embodiment in which a heavier duty aglet is used, serving the function of an obstruction member;

Figure 5b shows a cross-sectional view of an embodiment in which a heavier duty aglet has been deformed to become larger than the aperture in a bag wall;

Figure 6 is a diagrammatic part cross-sectional view of a first embodiment of the present invention in situ;

Figure 7 is a diagrammatic part cross-sectional view of a second embodiment of the present invention in situ;

Figure 8 is an isometric view of a half aglet in accord with a further embodiment;

Figure 9 is an isometric view of a schematic arrangement of one embodiment of the interior workings of a handle applying station;

Figure 10 is a view of the embodiment of Figure 9 detailing the cord handle supplying arrangement omitted from Figure 9 for reasons of clarity;

Figure 11 is a cross-sectional view X-X of Figure 10;

Figure 12 is a schematic plan view of a base inserting station;

Figure 13 is a schematic transverse cross-sectional view of a first embodiment of a cord handle applying and fixing station;

Figure 14 is a plan view of Figure 13;

Figure 15 is a perspective view of a form of bag handle suitable for use in the present invention;

Figure 16 is a transverse cross-sectional view of a bag handle applying station for fitment of cord handles in accord with Figure 15; and

Figure 17 is a plan view of the arrangement shown in Figure 1.

Detailed Description of the Preferred Embodiments

As shown in Figure 1, a conventional bag 10 is defined by a plurality of walls 15 with an open upper end 20 and a closed lower end 25.

Adjacent its upper end are a pair of flexible cord handles 30, 40 on approximately opposite sides of the bag. The flexible cord handles 30, 40 pass through respective pairs of apertures 31, 32 and 41, 42 in the bag walls.

As per conventional practice, the free ends of the handles are tied in knots 35 (not shown) and 45 on the interior side of the bag such that the ends of handles 30, 40 cannot slide through the apertures in the bag wall and the handle disengage from the bag.

As previously discussed, however, this conventional process is labour intensive, expensive and unreliable.

Figure 2 shows a bag according to the present invention which replaces the knots 35 and 45 with obstruction members 50 fixed to the free ends of the handles 30, 40. The bag 10 may comprise any suitable flexible material such as paper, light cardboard, plastic film or fabric. The free ends of each handle 30, 40 may be doubled back before being inserted into the cord receiving passageway of the obstruction members 50, so that the free ends of the handles 30, 40 are on the opposite side of the bag wall to the obstruction members 50.

Figure 3 shows an embodiment of the present invention, in which a section 31 of the agletted cord handle 30 is in a position to be passed through an aperture 16 in the bag wall 15 and into a cord receiving cavity 51 of an obstruction member 50. The aglet 32, once positioned at least partially within the cavity 51, may then be bonded to the obstruction member 50 by applying sufficient heat to cause bonding. The step of heating the obstruction member 50 may be performed using microwave heating techniques. In cases such as this the heating preferably occurs only within a small part of the obstruction member 50 close to the aglet 32. Such a technique may be desirable for the purposes of speed, efficiency of production, or to minimise heat damage to the cord 31 or aglet 32. Once the aglet 32 and the obstruction member 50 are bonded together, the cord has then been securely attached to the

bag. The aglet 32 must therefore be sufficiently firmly attached to the cord 31 to hold the cord 31 in place when in use as a bag handle.

Note that the obstruction member 50 is large enough that it is unable to pass through the aperture 16. Note also that the aperture 16 formed in the bag wall 15 is only marginally larger than the agletted cord 31. This means that the strength of the bag wall 15 is less affected by the aperture 16, and also allows a smaller (and hence cheaper) obstruction member 50 to be used.

Figure 4a shows an embodiment in which the obstruction member 50 has dimensions such that it may pass through the aperture 16 of the bag 15. In this embodiment, the obstruction member 50 has been bonded to the aglet 32 prior to passing the cord 31 through the aperture 16. As it is clear in Figure 4a that the obstruction member 50 will not secure the cord handle 31 to the bag, the obstruction member 50 is subsequently deformed so that it becomes large enough to prevent the cord 31 passing through the aperture 16, as shown in Figure 4b. The deformation may be effected by applying sufficient heat to the obstruction member 50 that it becomes malleable, and then applying a force in order to distort the shape of the obstruction member 50. The obstruction member 50 then cools and sets in the new shape.

Figure 5a shows an embodiment in which the aglet 32 functions as the obstruction member 50. Once again, it is clear in Figure 5a that the aglet 32 will not secure the cord handle 31 to the bag, so the aglet 32 must be deformed so that it becomes large enough to act as an obstruction member and prevent the cord 31 passing through the aperture 16, the end result being shown in Figure 5b.

Clearly, the aglet 32 used in the embodiment shown in Figure 5a and Figure 5b must be of greater mass, in order that it may provide a sufficiently sturdy obstruction once it is deformed such that its dimensions no longer permit it to pass through the aperture 16.

Although the invention has been described with reference to particular examples of the invention, it should be appreciated that it may be exemplified in other forms. For instance, the obstruction member can be positioned on the interior or exterior side of the bag wall. If the obstruction member is decorative or includes additional advertising material, it may be desirable to have it positioned on an exterior side of the bag.

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The cord receiving cavity of the obstruction member may pass entirely through the obstruction member, or alternatively the cavity may intrude only partially into the obstruction member. In cases where the cavity only extends partially into the obstruction member, it is important that the aglet is positioned close enough to the end of the cord that when the cord is inserted into the cavity, the aglet becomes positioned at least partially within the cavity.

In each of Figures 6 and 7 a section through an aperture 60 in a side wall 61 of a bag 62 is fitted with an aglet 63.

In Figure 6 aglet 63 comprises flexibly biased barbs 64 which retract as aglet 63 is pushed through aperture 60 and spring back to their retaining position as shown when they have passed through aperture 60.

The embodiment of Figure 7 incorporates an additional retaining washer 65 interposed between barbs 64 and side wall 61.

The bag handle sections as shown in Figures 6 and 7 include a flexible cord portion to which aglet 63 is affixed.

In an embodiment, each aglet is formed by two halves divided longitudinally as shown by the half aglet 70 of Figure 8. Each half aglet 70 is to be joined to a like half about a cord end. Each half piece 70 preferably includes inwardly projecting gripping barbs or teeth 71 which pass into the cord and hold the cord to the aglet when the two halves 70 are joined together by adhesive or microwave welding or similar.

The handle applying station 80 depicted in Figures 9 and 10 receives bags 81, which are gripped by moveable suction force grippers 82, being moveable under the action of a pneumatic or hydraulic pick and place cylinder 83 which moves to reach out to grip a bag and draw it on to a set of suction grippers 82. A plurality of such gripper sets 82 are mounted on an indexing chain drive system 84.

The pick and place cylinder 83 and its suction grip is withdrawn from a bag 81 once that bag is gripped at a station 82. Movement of the indexing chain drive system 84 to which the bag gripping sets 82 are mounted carries a bag 81 to a cord handle applying station as shown in Figure 11.

At the cord applying station of Figure 11 a predetermined length of cord is furnished. Figure 10 depicts one form of producing a predetermined length of cord which is supplied

from a continuous cord length 85 travelling around cord indexing wheel 16 mounted atop the unit 80. Cord pick-up clamp and cylinder 87 draws a length of cord from the continuous length 85, which is then cut to size by hot wire core cutter 88 to be readied for insertion into bag 81 at the cord applying station of Figure 11. Typically, the form of cord could be as shown in any of Figures 3-5b or of a form as depicted in Figure 15 hereof.

A bag opening suction cup and pneumatic/hydraulic cylinder 89 is activated to open the mouth of bag 82 against the holding action of bag indexing suction cup and cylinder assembly 82. The ends of a length of cord handle are then passed through bag handle apertures formed in the sidewalls of a bag 81 at hole punching station 90 upstream of the handle applying station of Figure 11. The Figure 11 embodiment depicts a moveable heater block assembly 96 for shaping an aglet in accord with Figure 5b. For reasons of clarity, a bag handle applying station is shown in Figures 10 and 11 fitting handles only to one sidewall of a bag whereas the other sidewall can have a handle fitted by an arrangement which substantially mirrors the cord supplying, cutting and fitting arrangement shown in Figures 10 and 11.

At the completion of the handle applying and other optional actions of station 80 each bag is removed from station 80 by means of out place cylinder 95 and its attached suction pad gripper which holds bag 81.

The schematic of Figure 12 shown one arrangement for feeding and fitting a stiff base member or insert to the interior of a bag. A base insert member 91 is supplied from a stack under the action of a servo indexing drive system 92. The topmost base insert 91 is gripped under the action of a vacuum force pick up 93, having a vacuum pad 94. Vacuum pad 94 traverses with a gripped base insert 91 to a location in the path of movement of bags 81 in apparatus 80 where the mouth of bag 81 is open. The base insert 91 is then fitted within the bag 81 as shown in the left hand schematic of Figure 12 under the action of variably displaceable tiltable and placing cylinders 97; the vacuum force of pad 94 is released at a predetermined location within the bag so that the released base insert 91 falls to the bottom of the bag 81 to form a stiffener for the base of the bag. Preferably, the base insert 91 is adhered to the base of the bag, by adhesive located on the interior of the base of the bag or positioned on the underside of base insert member 91. By this means an insert 91 is fixably retained against the base of bag 81.

Figures 13 and 14 depict in more detail an arrangement where aglets of the form of Figures 5a and 5b are passed through openings in a bag 81 under the action of a cord inserting cylinder 100. Aglet 101 being gripped by cord insertion handling clamp 102 mounted on rotary cylinder 103 adapted to move toward bag 81 under action of cord inserting cylinder 100.

Heating block 104 is inserted into the mouth of bag 81 so that the free end of aglet 101 contacts block 104 within the bag to shape the free end of aglet 101 to a size which cannot thereafter pass out of bag handle aperture 105 in bag 81. In the Figure 14 view, cord insert guide tool 106 is shown which has been omitted from Figure 13 for reasons of clarity.

The cord handle of Figure 15 is formed by a flexible cord section 110 with transverse end stops 111. Such a cord can be supplied as discrete items or as a series of repeated sections on a continuous length of cord fed to a cord applying station which severs the discrete sections before their application as handles to a bag.

The embodiment of Figures 16 and 17 is similar to that of Figures 13 and 14, but in this case a cord handle of the form of Figure 15 is applied by passing respective end stops 111 through apertures 105, which upon their release reorient to lie transversely of respective apertures 105, and of their adjacent section of cord 110. As shown in Figure 16, interiorly of the mouth of bag 81, there is positioned a bag holding clamp assembly 120 to aid the stable positioning of the side wall of bag 81 relative to the movement of end stop 111 under the action of cord inserting cylinder 100.

While the present inventive method and apparatus has been described in relation to attaching flexible handles to bags, it will be understood by persons skilled in the art that the inventive obstruction member, method and apparatus are equally suitable for other types of receptacles for example buckets, boxes, baskets etc with flexible cord handles.

The obstruction member may include advertising material for example the name of the retail outlet providing the bags to its shoppers or may be shaped in the form of a company logo or symbol. The step of deforming the obstruction member may be performed in such a way that the obstruction member provides advertising material or decoration. The use of an appropriately shaped tool to perform the deformation may make this process simpler. Of

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course, in such a case it may be beneficial to position the obstruction member on the exterior side of the bag.

It will be further appreciated by persons skilled in the art that numerous variations and/or modifications may be made to the invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. The present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive.

The Claims defining the invention are as follows:

1. A method for attaching a flexible cord handle to a bag comprising the steps of:
 - forming at least one aperture through a bag wall;
 - passing an end of a cord, having an aglet thereon, through the at least one aperture in the bag wall;
 - providing at least one obstruction member with at least one cord receiving cavity therein adapted to receive the aglet of at least one cord;
 - inserting the aglet into the cord receiving cavity of the obstruction member so that the aglet is located at least partially within the cavity; and
 - bonding the aglet to the obstruction member.
2. A method for attaching a flexible cord handle to a bag comprising the steps of:
 - forming at least one aperture through a bag wall;
 - passing an end of a cord, having an aglet thereon, through the at least one aperture without substantially deforming said aglet; and
 - shaping the aglet to form an obstruction member which cannot pass through the aperture.
3. An obstruction member for attaching a cord handle to a bag or other receptacle, the obstruction member comprising:
 - a cord receiving cavity adapted to engage an agleted cord;
 - said member being large enough, or being adapted to be permanently deformed so as to become large enough, to be unable to pass through an aperture in the bag wall; and
 - being of a material adapted to be bonded to the aglet.
4. A cord adapted to form the handle of a bag, said cord comprising an aglet at at least one end, said aglet being adapted to be affixed to an obstruction member or shaped to form an obstruction member sized to be unable to pass through a predetermined aperture in a bag wall.
5. A bag comprising a handle formed from a cord as claimed in claim 4.
6. A bag as claimed in claim 5 when made from paper, cardboard, plastics, film or cloth or any combination thereof.

7. A method for attaching a flexible cord handle to a bag including the steps of:
 - forming at least one aperture through a bag wall;
 - passing an end of a cord having an aglet thereon through said at least one aperture, said aglet comprising detent or barb means biased outwardly thereof which are movable inwardly as the aglet is passed through the aperture and which detent or barb means return to a position outwardly of the aglet to provide a stop against the bag wall preventing removal of the aglet from the aperture in the reverse direction to its passing through the aperture.
8. A method for attaching a flexible cord handle to a bag including the steps of:
 - forming at least one aperture through a bag wall;
 - passing an end of a cord having an aglet thereon, through said at least one aperture, said aglet comprising detent or barb means biased outwardly thereof;
 - providing at least one obstruction member with at least one aglet receiving cavity therein adapted to receive the aglet of at least one cord, the obstruction member being sized to be unable to pass through the aperture;
 - inserting the aglet into the aglet receiving cavity so that the detent or barb means are positioned to retain the obstruction member against removal from the aglet.
9. A method as claimed in claim 7 or 8 wherein a disc or washer is fitted between the detent or barb means and the bag wall.
10. An aglet for fitment to a cord handle and adapted to fix the cord handle to an aperture in a bag wall, said aglet including a longitudinal body part formed with outwardly biased barbs of detent means adapted to retract inwardly as the body part is moved through an aperture during which the barb or detent means contact the perimeter of the aperture.
11. An aglet as claimed in claim 10 which includes an integrally formed stopping surface spaced from the barb or detent means to abut the bag wall at the opposite side of the aperture to that of the barb or detent means when in situ.
12. A method for attaching flexible cord handles to bags or other receptacles wherein a bag is maintained with a mouth of the bag in an open configuration by means of the application of a partial vacuum to at least one side wall of the bag during which a flexible cord handle is applied to the bag.

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13. A method as claimed in claim 12 wherein the handle comprises a length of flexible cord fitted with elongate stops which extend transversely of the cord and which stops are aligned parallel to the cord before being pushed through respective bag apertures and then returned to their transverse orientation relative to the cord to act as a stop preventing removal of the cord from the aperture in a direction opposite to the direction of insertion of the cord and stop through the aperture.

14. A method of fitment of a cardboard or similar base insert into a bag after opening of the mouth of the bag by means of the application of a partial vacuum to at least one side wall of the bag while moving the bag along a pathway whereafter the base insert is placed into the bag and affixed to the interior of the bottom of the bag by adhesive pre-applied to the bottom of the bag and/or to the underside of the base insert.



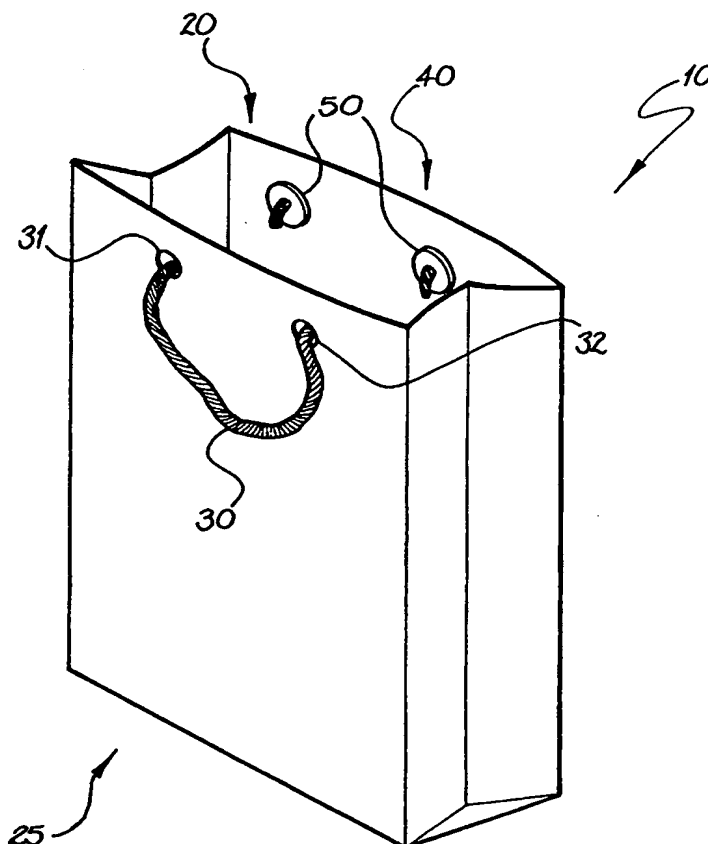
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(54) Title: BAG HANDLE AND METHOD AND MEANS OF ATTACHMENT

(57) Abstract

A handle (30, 40) applying method and means employs heating and deforming an aglet (32) to form or fusing an end stop on a bag cord after fitting the cord through a handle locating aperture (31, 32, 41, 42) in a bag wall (15) or fitting an aglet (32) having a resiliently movable barb (64) or detent on the end of a bag cord before passing the aglet through a handle locating aperture which causes the barb (64) or detent to move toward the aglet as it passes through the aperture and which barb (64) or detent returns to its rest position to restrain the cord from removal through the aperture in a reverse direction to that of fitment of the cord end.



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BAG HANDLE AND METHOD AND MEANS OF ATTACHMENT

Introduction

The present invention relates to an apparatus for attaching a handle to a bag, and to a
5 method of attaching a handle to a bag, in particular, but not only, to shopping bags with
flexible cord handles.

Throughout this specification, unless the context requires otherwise, the word
"comprise", or variations such as "comprises" or "comprising", will be understood to imply
the inclusion of a stated element, integer or step, or group of elements, integers or steps, but
10 not the exclusion of any other element, integer or step, or group of elements, integers or
steps.

Description of the Prior Art

One type of bag relevant to the field of this invention, has a pair of flexible cord handles
which pass through apertures in the bag, the free ends of the handles being tied to prevent
15 disengagement of the handle from the bag. The flexible cord handle is comfortable to use,
provides an aesthetically pleasing, high quality product and is easier to pack than rigid
handled bags since the flexible cord will drape downwardly on bag when not in use.

Connecting such handles to the bag wall itself, however, creates certain difficulties.
Normally the handle is manually passed through the apertures adjacent to the open upper end
20 of the bag and the free ends tied in knots to prevent the handle from disengaging from the
bag. This is a slow, expensive and labour intensive process, particularly if the handle is
produced from a woven cord which has very little rigidity in the axial direction. Further, the
possibility of human error cannot be discounted and if the knots are improperly tied, the
handle may disengage from the bag altogether leading to damage of the bag contents.

25 Handles are also known to be fitted to bags via adhesive strips which makes their
security dependant on the adhesion and tearability of the strip and/or bag.

The present invention is also concerned with subject matter disclosed in WO97/48550
and the contents of the specification of that published International patent application are also
incorporated herein by reference.

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In the art of bag manufacture and with particular regard to the application of flexible handles to bags as discussed in the aforementioned specifications, the mechanisation and automation of applying such handles has been highly desirable but hitherto unavailable. Apparatus which automates the manufacture of bags of the type depicted in Fig 1 of WO97/48550 have been in use for many years. The output of such equipment being a completed bag without handles attached which are later added to the bag by a manual operation. WO97/48550 discloses a method and means for integrating the application of handles to bags by eliminating manual handling.

Summary of the Invention

10 The present invention provides a method and apparatus for attaching flexible cord handles to bags or other receptacles which offers a useful alternative to known arrangements.

In a first aspect, the present invention provides a method for attaching a flexible cord handle to a bag comprising the steps of:

- forming at least one aperture through a bag wall;
- 15 passing an end of a cord, having an aglet thereon, through the at least one aperture in the bag wall;
- providing at least one obstruction member with at least one cord receiving cavity therein adapted to receive the aglet of at least one cord;
- inserting the aglet into the cord receiving cavity of the obstruction member so that
- 20 the aglet is located at least partially within the cavity; and
- bonding the aglet to the obstruction member.

In another form of this first aspect of the invention there is provided a method for attaching a flexible cord handle to a bag comprising the steps of:

- forming at least one aperture through a bag wall;
- 25 passing an end of a cord, having an aglet thereon, through the at least one aperture; and
- deforming the aglet to form an obstruction member which cannot pass through the aperture.

The size of the aperture formed through the bag wall is preferably only marginally larger
30 than the largest transverse cross-sectional dimension of the aglet.

The obstruction member provided in accordance with the above method may be of many different forms. For example, the cord receiving cavity within the obstruction member may pass entirely through the obstruction member. In such embodiments, the aglet may be positioned some distance away from the end of the cord, and the cord may be passed through
5 the obstruction member until the aglet is located at least partially within the obstruction member. Such an embodiment would provide a length of cord protruding from the obstruction member which may be aesthetically desirable or serve some further useful function.

In other embodiments the obstruction member may provide advertising, for example a
10 company logo printed on the exposed side of the member, or the member may be shaped for the purposes of advertising.

The step of bonding the aglet to the obstruction member may be performed by sufficiently heating some or all of the obstruction member to cause said bonding. In some embodiments, the step of heating the obstruction member may be performed using microwave
15 heating techniques. In cases such as this the heating preferably occurs only within a small part of the obstruction member close to the aglet. Such a technique may be desirable for the purposes of speed, efficiency of production, or to minimise heat damage to the cord or aglet.

Alternatively, bonding between the aglet and the obstruction member may be effected by the use of an adhesive.

20 In some embodiments of the method of the invention, the obstruction member may have dimensions such that it can pass through the aperture of the bag. In such embodiments, the step of heating to cause bonding between the obstruction member and the aglet may occur before the step of passing the cord through the aperture. In order to attach the cord handle to the bag in such embodiments the method further includes the step of:

25 heating some or all of the obstruction member;
before deforming the obstruction member such that its dimensions no longer permit it to pass through the aperture.

Furthermore, in such embodiments the aglet itself may function as the obstruction member. In cases such as this the aglet must be of a quality of deformable material such that

it can provide a sufficiently sturdy obstruction once it is deformed so that its dimensions no longer permit it to pass through the aperture.

For such embodiments the step of deforming the obstruction member may be performed in such a way that the obstruction member provides advertising material or decoration, for example it may be deformed into the shape of a country or a company logo.

A second aspect of the present invention provides an obstruction member for attaching a cord handle to a bag or other receptacle, the obstruction member:

comprising a cord receiving cavity adapted to engage an agletted cord;
said member being large enough, or being able to be deformed so that it becomes
10 large enough, to be unable to pass through an aperture in the bag wall; and
being of a material adapted to be bonded to an aglet.

In embodiments where the obstruction member has dimensions such that it may pass through the aperture of the bag, it must be made of a deformable material.

The cord receiving cavity within the obstruction member may be a passageway entirely
15 through the obstruction member.

In other embodiments the obstruction member may provide advertising, for example a company logo printed on the exposed side of the member, or the member may be shaped for the purposes of advertising.

A third aspect of the present invention provides an agletted cord. The cord may be made
20 of any suitable flexible material. The agletted cord must be able to pass through a corresponding aperture in a bag wall.

The aglet must be sufficiently firmly attached to the cord to hold the cord in place when in use as a bag handle.

The aglet may function as an obstruction member. In such cases the aglet must be
25 deformable, and of sufficient mass to provide an effective obstruction after deformation.

Alternatively, the aglet must be made of a suitable material to bond or adhere to an obstruction member.

A fourth aspect of the present invention provides a bag or receptacle made according to the aforementioned method. Preferably the bag comprises a pair of flexible agletted cord
30 handles adjacent to an open mouth of the bag.

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The bag may comprise any suitable flexible material such as paper, light cardboard, plastic film or fabric.

Preferably, the bag comprises a pair of obstruction members for each handle, one obstruction member being fixed to each respective free end of the cord. Alternatively, the
5 bag may include a single obstruction member for each flexible cord handle, such an obstruction member having a pair of cord receiving passageways adapted to be fixed to both free ends of each flexible cord handle.

The free end of the cord may be doubled back on itself before being inserted into the cord receiving passageway of the obstruction member, so that the free end of the cord and
10 the handle are on the opposite side of the bag wall to the obstruction member.

As a matter of choice the obstruction member can be positioned on the interior or exterior side of the bag wall. If the obstruction member is decorative or includes additional advertising material, it may be desirable to have it positioned on an exterior side of bag.

In a fifth aspect the present invention provides a method for attaching a flexible cord
15 handle to a bag including the steps of:

forming at least one aperture through a bag wall;

passing an end of a cord having an aglet thereon through said at least one aperture, said aglet comprising detent or barb means biased outwardly thereof which are movable inwardly as the aglet is passed through the aperture and which detent or barb means
20 return to a position outwardly of the aglet to provide a stop preventing removal of the aglet from the aperture in the reverse direction to its passing through the aperture.

In a sixth aspect the present invention provides an aglet for fixing a cord handle to an aperture in a bag wall, said aglet including a longitudinal body part formed with outwardly biased barbs of detent means adapted to retract inwardly as the body part is moved through
25 an aperture during which the barb or detent means contact the perimeter of the aperture.

In a seventh aspect, the present invention provides a method for attaching a flexible cord handle to a bag including the steps of:

forming at least one aperture through a bag wall;

passing an end of a cord having an aglet thereon, through said at least one
30 aperture, said aglet comprising detent or barb means biased outwardly thereof;

providing at least one obstruction member with at least one aglet receiving cavity therein adapted to receive the aglet of at least one cord;

inserting the aglet into an aglet receiving member so that the detent or barb means are positioned to retain the obstruction member against removal from the aglet.

- 5 Preferably, an aglet of the fifth to seventh aspects of the present invention includes an integrally formed stopping surface spaced from the barb or detent means to abut the bag wall at the opposite side of the aperture to that of the barb or detent means when in situ.

The size of the aperture formed through the bag wall is preferably only marginally larger than the largest transverse cross-sectional dimension of the aglet.

- 10 The obstruction member provided in accordance with the seventh aspect method may be of many different forms. For example, the cord receiving cavity within the obstruction member may pass entirely through the obstruction member. In such embodiments, the aglet may be positioned some distance away from the end of the cord, and the cord may be passed through the obstruction member until the aglet is located at least partially within the
15 obstruction member. Such an embodiment would provide a length of cord protruding from the obstruction member which may be aesthetically desirable or serve some further useful function.

- In other embodiments the obstruction member may provide advertising, for example a company logo printed on the exposed side of the member, or the member may be shaped for
20 the purposes of advertising.

In an eighth aspect the present invention provides a method for attaching flexible cord handles to bags or other receptacles wherein a bag is maintained with a mouth of the bag in an open configuration by means of the application of a partial vacuum to at least one side wall of the bag during which a flexible cord handle is applied to the bag.

- 25 Cord handles and their method of attachment applicable to the present invention are as disclosed herein and as proposed in WO97/48550. An alternative form of handle suited to this aspect of the present invention is one wherein a length of flexible cord handle is fitted with elongate stops which extend transversely of the cord and which stops can be aligned parallel to the cord to be pushed through apertures in the side wall of the bag before returning

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to their transverse orientation relative to the cord and so act as a stop which prevents removal of the cord from the bag when the cord is fitted to the bag.

In a ninth aspect of the present invention there is provided a method of fitment of a cardboard or similar base insert into a bag after opening of the mouth of the bag by means of the application of a partial vacuum to at least one side wall of the bag while moving the bag along a pathway whereafter the base insert is placed into the bag and affixed to the interior of the bottom of the bag by adhesive pre-applied to the bottom of the bag and/or to the underside of the base insert. The fitment of a cardboard base into a bag in accord with this aspect of the invention can be readily integrated into the pathway for fitment of handles in accord with the eighth aspect described above with the adding of the base insert to the bag being provided before or after the location at which the handles are fitted or at the handle fitting station.

In one embodiment bags are carried along a pathway so that they are oriented with their mouths uppermost and suction applying means are positioned to contact the exterior of opposite sidewalls of the bag near to the mouth of the bag and draw the bag open via relative movement therebetween while holding a respective bag sidewall under partial vacuum force.

In a tenth aspect the present invention provides a method and means for fitment of flexible cord handles with pre-applied end stops oriented transversely of the cords as described above. In this aspect a cord is fed to an applying station having means for orienting each end stop in parallel alignment with each adjacent cord section; each end stop then being fed through an aperture in a sidewall of a bag, the end stop being gripped at the opposite face of the sidewall and moved so that each end stop is released and oriented transverse to the axes of the cord on the opposite face of the sidewall, whereafter removal of the cord from the sidewall of the bag is prevented by the stop on the cord contacting the opposite face adjacent the aperture; the largest cross-sectional dimension of the aperture being less than the elongate dimension of the stop.

Brief Description of the Drawings

Embodiments of the invention will now be described by way of example with reference to the accompanying drawings in which:

Figure 1 is a perspective view of a conventional bag/receptacle;

Figure 2 is a perspective view of one embodiment of a bag according to the present invention;

Figure 3 is a cross-sectional view of an embodiment of the invention in which the obstruction member is larger than the aperture in the bag wall;

5 Figure 4a shows a cross-sectional view of an embodiment in which the obstruction member is smaller than the aperture in the bag wall;

Figure 4b shown a cross-sectional view in which the obstruction member has been deformed to become larger than the aperture in the bag wall;

Figure 5a shows a cross-sectional view of an embodiment in which a heavier duty
10 aglet is used, serving the function of an obstruction member;

Figure 5b shows a cross-sectional view of an embodiment in which a heavier duty aglet has been deformed to become larger than the aperture in a bag wall;

Figure 6 is a diagrammatic part cross-sectional view of first embodiment of the present invention in situ;

15 Figure 7 is a diagrammatic part cross-sectional view of a second embodiment of the present invention in situ;

Figure 8 is an isometric view of a half aglet in accord with a further embodiment;

Figure 9 is an isometric view of a schematic arrangement of one embodiment of the interior workings of a handle applying station;

20 Figure 10 is a view of the embodiment of Figure 9 detailing the cord handle supplying arrangement omitted from Figure 9 for reasons of clarity;

Figure 11 is a cross-sectional view X-X of Figure 10;

Figure 12 is a schematic plan view of a base inserting station;

Figure 13 is a schematic transverse cross-sectional view of a first embodiment
25 of a cord handle applying and fixing station;

Figure 14 is a plan view of Figure 13;

Figure 15 is a perspective view of a form of bag handle suitable for use in the present invention;

Figure 16 is a transverse cross-sectional view of a bag handle applying station for
30 fitment of cord handles in accord with Figure 15; and

Figure 17 is a plan view of the arrangement shown in Figure 1.

Detailed Description of the Preferred Embodiments

As shown in Figure 1, a conventional bag 10 is defined by a plurality of walls 15 with an open upper end 20 and a closed lower end 25.

5 Adjacent its upper end are a pair of flexible cord handles 30, 40 on approximately opposite sides of the bag. The flexible cord handles 30, 40 pass through respective pairs of apertures 31, 32 and 41, 42 in the bag walls.

As per conventional practice, the free ends of the handles are tied in knots 35 (not shown) and 45 on the interior side of the bag such that the ends of handles 30, 40 cannot slide
10 through the apertures in the bag wall and the handle disengage from the bag.

As previously discussed, however, this conventional process is labour intensive, expensive and unreliable.

Figure 2 shows a bag according to the present invention which replaces the knots 35 and 45 with obstruction members 50 fixed to the free ends of the handles 30, 40. The bag 10 may
15 comprise any suitable flexible material such as paper, light cardboard, plastic film or fabric. The free ends of each handle 30, 40 may be doubled back before being inserted into the cord receiving passageway of the obstruction members 50, so that the free ends of the handles 30, 40 are on the opposite side of the bag wall to the obstruction members 50.

Figure 3 shows an embodiment of the present invention, in which a section 31 of the
20 agletted cord handle 30 is in a position to be passed through an aperture 16 in the bag wall 15 and into a cord receiving cavity 51 of an obstruction member 50. The aglet 32, once positioned at least partially within the cavity 51, may then be bonded to the obstruction member 50 by applying sufficient heat to cause bonding. The step of heating the obstruction member 50 may be performed using microwave heating techniques. In cases such as this the
25 heating preferably occurs only within a small part of the obstruction member 50 close to the aglet 32. Such a technique may be desirable for the purposes of speed, efficiency of production, or to minimise heat damage to the cord 31 or aglet 32. Once the aglet 32 and the obstruction member 50 are bonded together, the cord has then been securely attached to the bag. The aglet 32 must therefore be sufficiently firmly attached to the cord 31 to hold the
30 cord 31 in place when in use as a bag handle.

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Note that the obstruction member 50 is large enough that it is unable to pass through the aperture 16. Note also that the aperture 16 formed in the bag wall 15 is only marginally larger than the agletted cord 31. This means that the strength of the bag wall 15 is less affected by the aperture 16, and also allows a smaller (and hence cheaper) obstruction member 50 to be used.

Figure 4a shows an embodiment in which the obstruction member 50 has dimensions such that it may pass through the aperture 16 of the bag 15. In this embodiment, the obstruction member 50 has been bonded to the aglet 32 prior to passing the cord 31 through the aperture 16. As it is clear in Figure 4a that the obstruction member 50 will not secure the cord handle 31 to the bag, the obstruction member 50 is subsequently deformed so that it becomes large enough to prevent the cord 31 passing through the aperture 16, as shown in Figure 4b. The deformation may be effected by applying sufficient heat to the obstruction member 50 that it becomes malleable, and then applying a force in order to distort the shape of the obstruction member 50. The obstruction member 50 then cools and sets in the new shape.

Figure 5a shows an embodiment in which the aglet 32 functions as the obstruction member 50. Once again, it is clear in Figure 5a that the aglet 32 will not secure the cord handle 31 to the bag, so the aglet 32 must be deformed so that it becomes large enough to act as an obstruction member and prevent the cord 31 passing through the aperture 16, the end result being shown in Figure 5b.

Clearly, the aglet 32 used in the embodiment shown in Figure 5a and Figure 5b must be of greater mass, in order that it may provide a sufficiently sturdy obstruction once it is deformed such that its dimensions no longer permit it to pass through the aperture 16.

Although the invention has been described with reference to particular examples of the invention, it should be appreciated that it may be exemplified in other forms. For instance, the obstruction member can be positioned on the interior or exterior side of the bag wall. If the obstruction member is decorative or includes additional advertising material, it may be desirable to have it positioned on an exterior side of the bag.

The cord receiving cavity of the obstruction member may pass entirely through the obstruction member, or alternatively the cavity may intrude only partially into the obstruction

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member. In cases where the cavity only extends partially into the obstruction member, it is important that the aglet is positioned close enough to the end of the cord that when the cord is inserted into the cavity, the aglet becomes positioned at least partially within the cavity.

In each of Figures 6 and 7 a section through an aperture 60 in a side wall 61 of a bag 62 is fitted with an aglet 63.

In Figure 6 aglet 63 comprises flexibly biased barbs 64 which retract as aglet 63 is pushed through aperture 60 and spring back to their retaining position as shown when they have passed through aperture 60.

The embodiment of Figure 7 incorporates an additional retaining washer 65 interposed between barbs 64 and side wall 61.

The bag handle sections as shown in Figures 6 and 7 include a flexible cord portion to which aglet 63 is affixed.

In an embodiment, each aglet is formed by two halves divided longitudinally as shown by the half aglet 70 of Figure 8. Each half aglet 70 is to be joined to a like half about a cord end. Each half piece 70 preferably includes inwardly projecting gripping barbs or teeth 71 which pass into the cord and hold the cord to the aglet when the two halves 70 are joined together by adhesive or microwave welding or similar.

The handle applying station 80 depicted in Figures 9 and 10 receives bags 81, which are gripped by moveable suction force grippers 82, being moveable under the action of a pneumatic or hydraulic pick and place cylinder 83 which moves to reach out to grip a bag and draw it on to a set of suction grippers 82. A plurality of such gripper sets 82 are mounted on an indexing chain drive system 84.

The pick and place cylinder 83 and its suction grip is withdrawn from a bag 81 once that bag is gripped at a station 82. Movement of the indexing chain drive system 84 to which the bag gripping sets 82 are mounted carries a bag 81 to a cord handle applying station as shown in Figure 11.

At the cord applying station of Figure 11 a predetermined length of cord is furnished. Figure 10 depicts one form of producing a predetermined length of cord which is supplied from a continuous cord length 85 travelling around cord indexing wheel 16 mounted atop the unit 80. Cord pick-up clamp and cylinder 87 draws a length of cord from the continuous

- 12 -

length 85, which is then cut to size by hot wire core cutter 88 to be readied for insertion into bag 81 at the cord applying station of Figure 11. Typically, the form of cord could be as shown in any of Figures 3-5b or of a form as depicted in Figure 15 hereof.

A bag opening suction cup and pneumatic/hydraulic cylinder 89 is activated to open the mouth of bag 82 against the holding action of bag indexing suction cup and cylinder assembly 82. The ends of a length of cord handle are then passed through bag handle apertures formed in the sidewalls of a bag 81 at hole punching station 90 upstream of the handle applying station of Figure 11. The Figure 11 embodiment depicts a moveable heater block assembly 96 for shaping an aglet in accord with Figure 5b. For reasons of clarity, a bag handle applying station is shown in Figures 10 and 11 fitting handles only to one sidewall of a bag whereas the other sidewall can have a handle fitted by an arrangement which substantially mirrors the cord supplying, cutting and fitting arrangement shown in Figures 10 and 11.

At the completion of the handle applying and other optional actions of station 80 each bag is removed from station 80 by means of out place cylinder 95 and its attached suction pad gripper which holds bag 81.

The schematic of Figure 12 shown one arrangement for feeding and fitting a stiff base member or insert to the interior of a bag. A base insert member 91 is supplied from a stack under the action of a servo indexing drive system 92. The topmost base insert 91 is gripped under the action of a vacuum force pick up 93, having a vacuum pad 94. Vacuum pad 94 traverses with a gripped base insert 91 to a location in the path of movement of bags 81 in apparatus 80 where the mouth of bag 81 is open. The base insert 91 is then fitted within the bag 81 as shown in the left hand schematic of Figure 12 under the action of variably displaceable tiltable and placing cylinders 97; the vacuum force of pad 94 is released at a predetermined location within the bag so that the released base insert 91 falls to the bottom of the bag 81 to form a stiffener for the base of the bag. Preferably, the base insert 91 is adhered to the base of the bag, by adhesive located on the interior of the base of the bag or positioned on the underside of base insert member 91. By this means an insert 91 is fixably retained against the base of bag 81.

Figures 13 and 14 depict in more detail an arrangement where aglets of the form of Figures 5a and 5b are passed through openings in a bag 81 under the action of a cord

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inserting cylinder 100. Aglet 101 being gripped by cord insertion handling clamp 102 mounted on rotary cylinder 103 adapted to move toward bag 81 under action of cord inserting cylinder 100.

Heating block 104 is inserted into the mouth of bag 81 so that the free end of aglet 101
5 contacts block 104 within the bag to shape the free end of aglet 101 to a size which cannot thereafter pass out of bag handle aperture 105 in bag 81. In the Figure 14 view, cord insert guide tool 106 is shown which has been omitted from Figure 13 for reasons of clarity.

The cord handle of Figure 15 is formed by a flexible cord section 110 with transverse end stops 111. Such a cord can be supplied as discrete items or as a series of repeated
10 sections on a continuous length of cord fed to a cord applying station which severs the discrete sections before their application as handles to a bag.

The embodiment of Figures 16 and 17 is similar to that of Figures 13 and 14, but in this case a cord handle of the form of Figure 15 is applied by passing respective end stops 111 through apertures 105, which upon their release reorient to lie transversely of respective
15 apertures 105, and of their adjacent section of cord 110. As shown in Figure 16, interiorly of the mouth of bag 81, there is positioned a bag holding clamp assembly 120 to aid the stable positioning of the side wall of bag 81 relative to the movement of end stop 111 under the action of cord inserting cylinder 100.

While the present inventive method and apparatus has been described in relation to
20 attaching flexible handles to bags, it will be understood by persons skilled in the art that the inventive obstruction member, method and apparatus are equally suitable for other types of receptacles for example buckets, boxes, baskets etc with flexible cord handles.

The obstruction member may include advertising material for example the name of the retail outlet providing the bags to its shoppers or may be shaped in the form of a company
25 logo or symbol. The step of deforming the obstruction member may be performed in such a way that the obstruction member provides advertising material or decoration. The use of an appropriately shaped tool to perform the deformation may make this process simpler. Of course, in such a case it may be beneficial to position the obstruction member on the exterior side of the bag.

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It will be further appreciated by persons skilled in the art that numerous variations and/or modifications may be made to the invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. The present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive.

Claims:

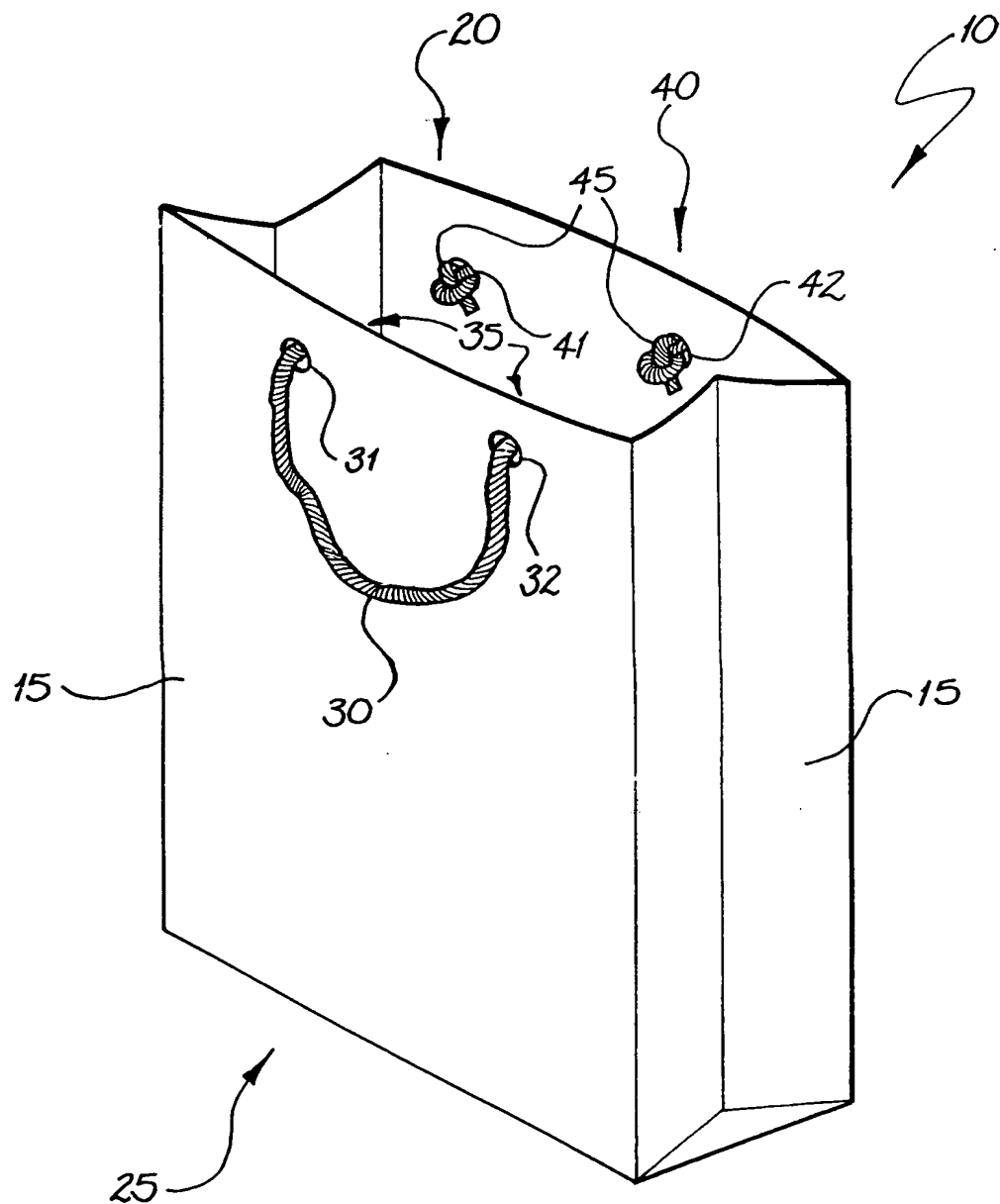
1. A method for attaching a flexible cord handle to a bag comprising the steps of:
forming at least one aperture through a bag wall;
passing an end of a cord, having an aglet thereon, through the at least one
5 aperture in the bag wall;
providing at least one obstruction member with at least one cord receiving cavity
therein adapted to receive the aglet of at least one cord;
inserting the aglet into the cord receiving cavity of the obstruction member so that
the aglet is located at least partially within the cavity; and
10 bonding the aglet to the obstruction member.
2. A method for attaching a flexible cord handle to a bag comprising the steps of:
forming at least one aperture through a bag wall;
passing an end of a cord, having an aglet thereon, through the at least one
aperture; and
15 deforming the aglet to form an obstruction member which cannot pass through
the aperture.
3. An obstruction member for attaching a cord handle to a bag or other receptacle, the
obstruction member:
comprising a cord receiving cavity adapted to engage an agleted cord;
20 said member being large enough, or being able to be deformed so that it becomes
large enough, to be unable to pass through an aperture in the bag wall; and
being of a material adapted to be bonded to an aglet.
4. A cord adapted to form the handle of a bag, said cord comprising an aglet at at least one
end, said aglet being adapted to be affixed to an obstruction member or deformed to form an
25 obstruction member to prevent the cord from being removed from an aperture through a bag
wall.
5. A bag comprising a handle formed from a cord as claimed in claim 4.
6. A bag as claimed in claim 5 when made from paper, cardboard, plastics, film or cloth
or any combination thereof.

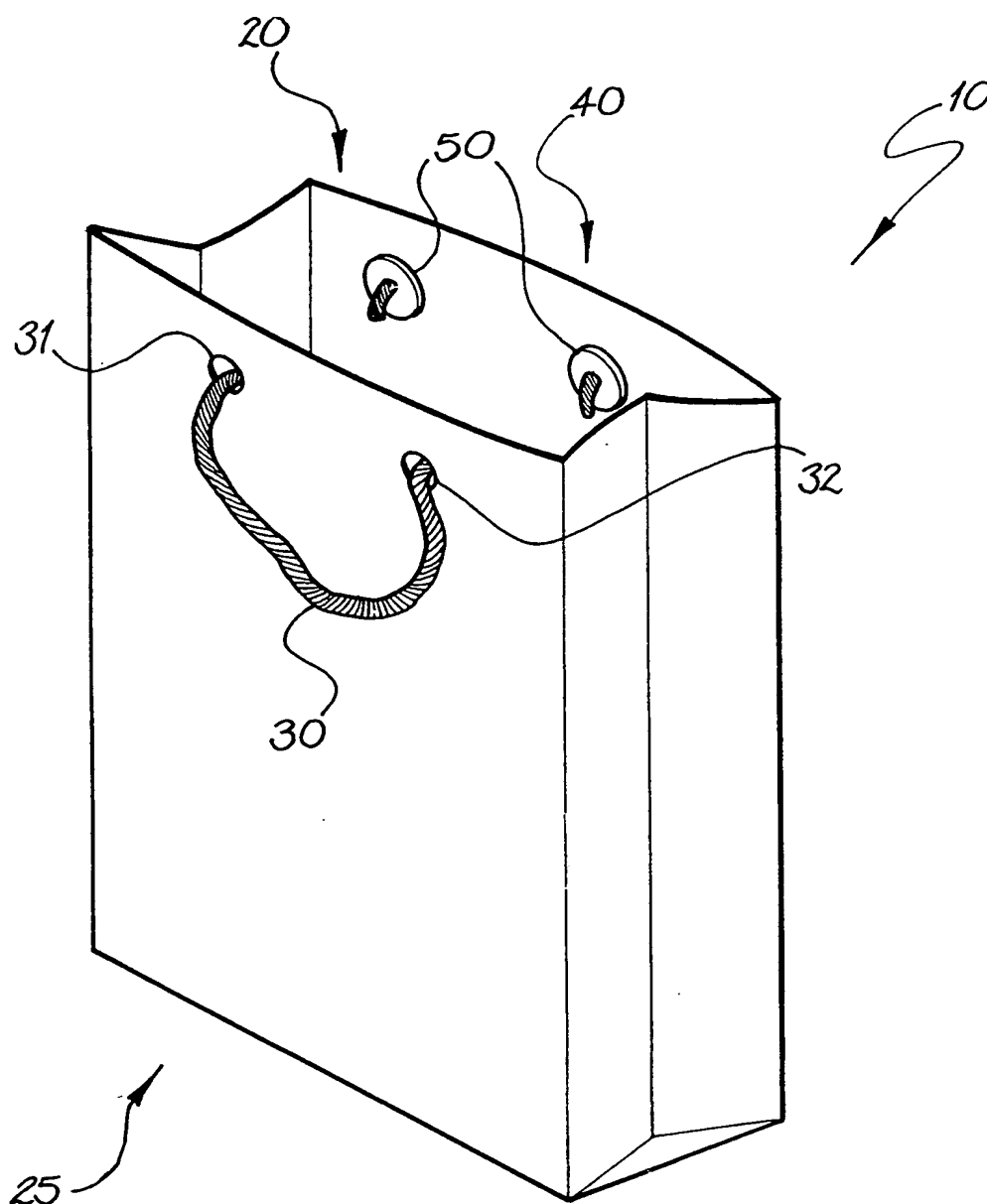
7. A method for attaching a flexible cord handle to a bag including the steps of:
- forming at least one aperture through a bag wall;
 - passing an end of a cord having an aglet thereon through said at least one aperture, said aglet comprising detent or barb means biased outwardly thereof which are
 - 5 movable inwardly as the aglet is passed through the aperture and which detent or barb means return to a position outwardly of the aglet to provide a stop preventing removal of the aglet from the aperture in the reverse direction to its passing through the aperture.
8. A method for attaching a flexible cord handle to a bag including the steps of:
- forming at least one aperture through a bag wall;
 - 10 passing an end of a cord having an aglet thereon, through said at least one aperture, said aglet comprising detent or barb means biased outwardly thereof;
 - providing at least one obstruction member with at least one aglet receiving cavity therein adapted to receive the aglet of at least one cord;
 - inserting the aglet into an aglet receiving member so that the detent or barb means
 - 15 are positioned to retain the obstruction member against removal from the aglet.
9. A method as claimed in claim 7 or 8 wherein a disc or washer is fitted between the detent or barb means and the bag wall.
10. An aglet for fixing a cord handle to an aperture in a bag wall, said aglet including a longitudinal body part formed with outwardly biased barbs of detent means adapted to retract
- 20 inwardly as the body part is moved through an aperture during which the barb or detent means contact the perimeter of the aperture.
11. An aglet as claimed in claim 10 which includes an integrally formed stopping surface spaced from the barb or detent means to abut the bag wall at the opposite side of the aperture to that of the barb or detent means when in situ.
- 25 12. A method for attaching flexible cord handles to bags or other receptacles wherein a bag is maintained with a mouth of the bag in an open configuration by means of the application of a partial vacuum to at least one side wall of the bag during which a flexible cord handle is applied to the bag.

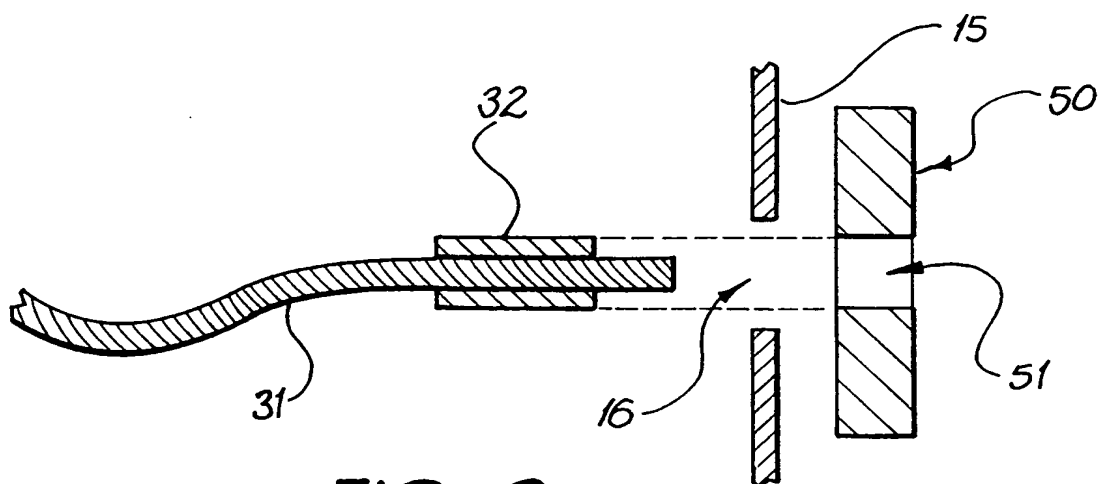
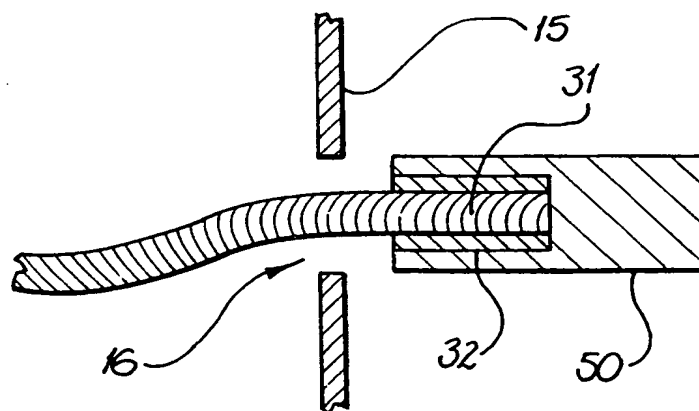
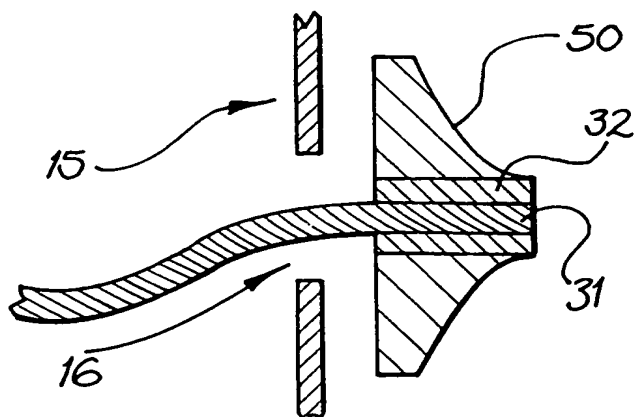
- 17 -

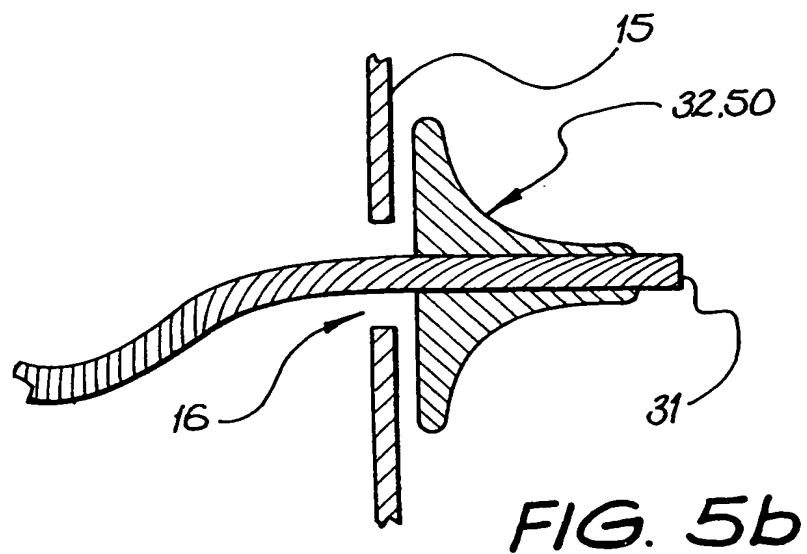
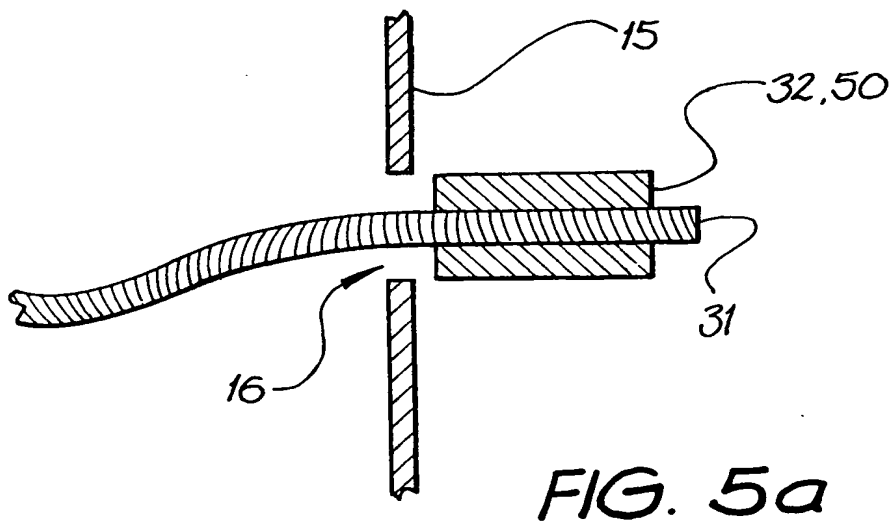
13. A method as claimed in claim 12 wherein the handle comprises a length of flexible cord fitted with elongate stops which extend transversely of the cord and which stops are aligned parallel to the cord before being pushed through respective bag apertures and then returned to their transverse orientation relative to the cord to act as a stop preventing removal of the
5 cord from the aperture in a direction opposite to the direction of insertion of the cord and stop through the aperture.

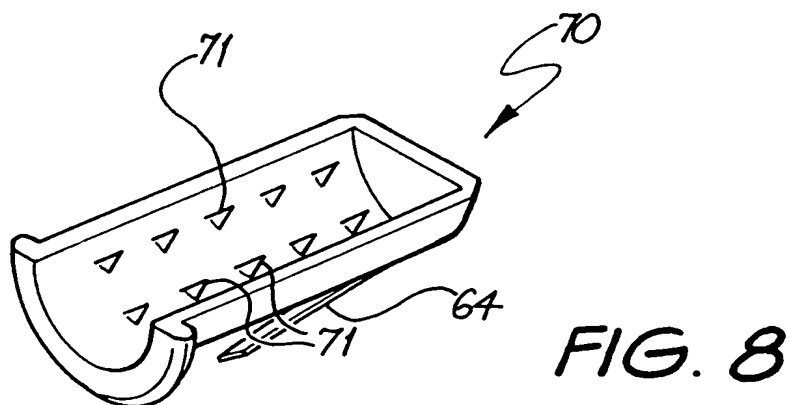
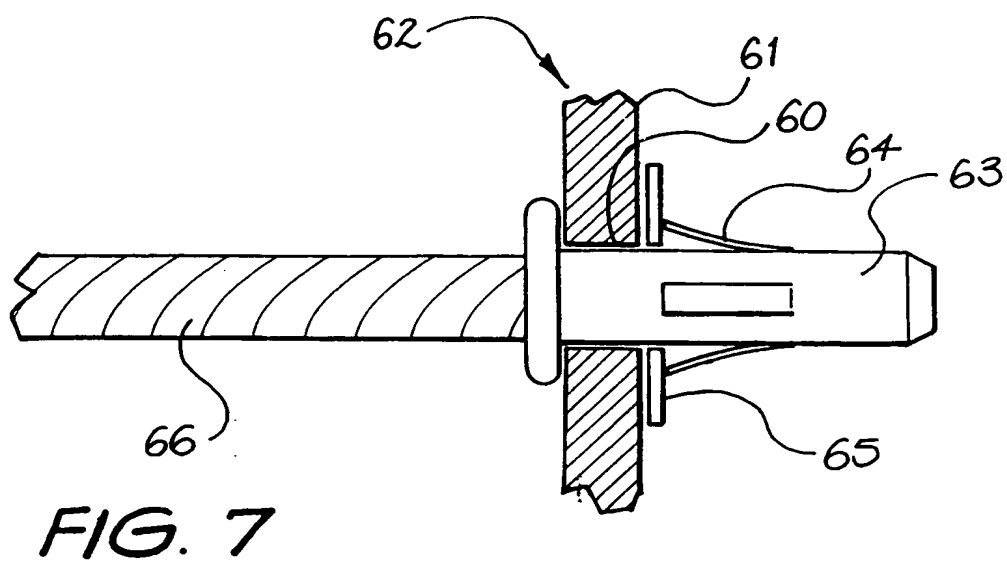
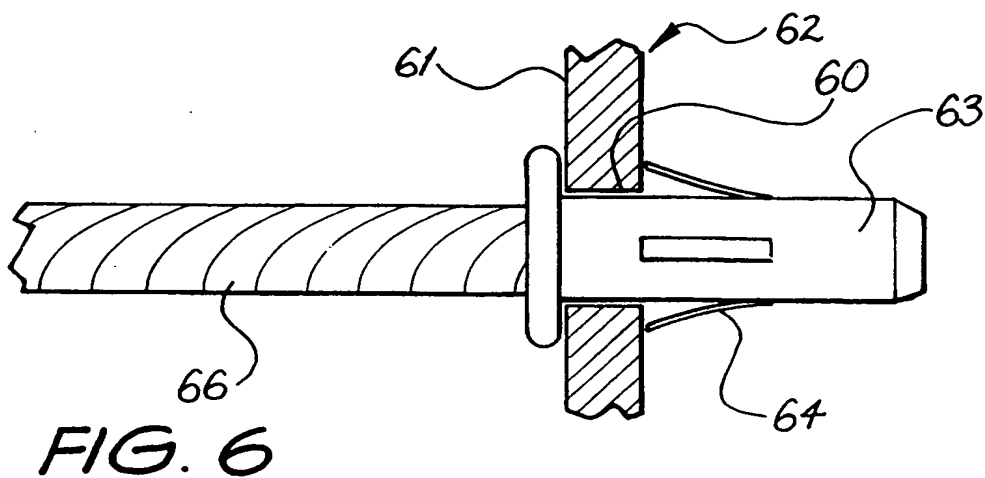
14. A method of fitment of a cardboard or similar base insert into a bag after opening of the mouth of the bag by means of the application of a partial vacuum to at least one side wall of the bag while moving the bag along a pathway whereafter the base insert is placed into the
10 bag and affixed to the interior of the bottom of the bag by adhesive pre-applied to the bottom of the bag and/or to the underside of the base insert.

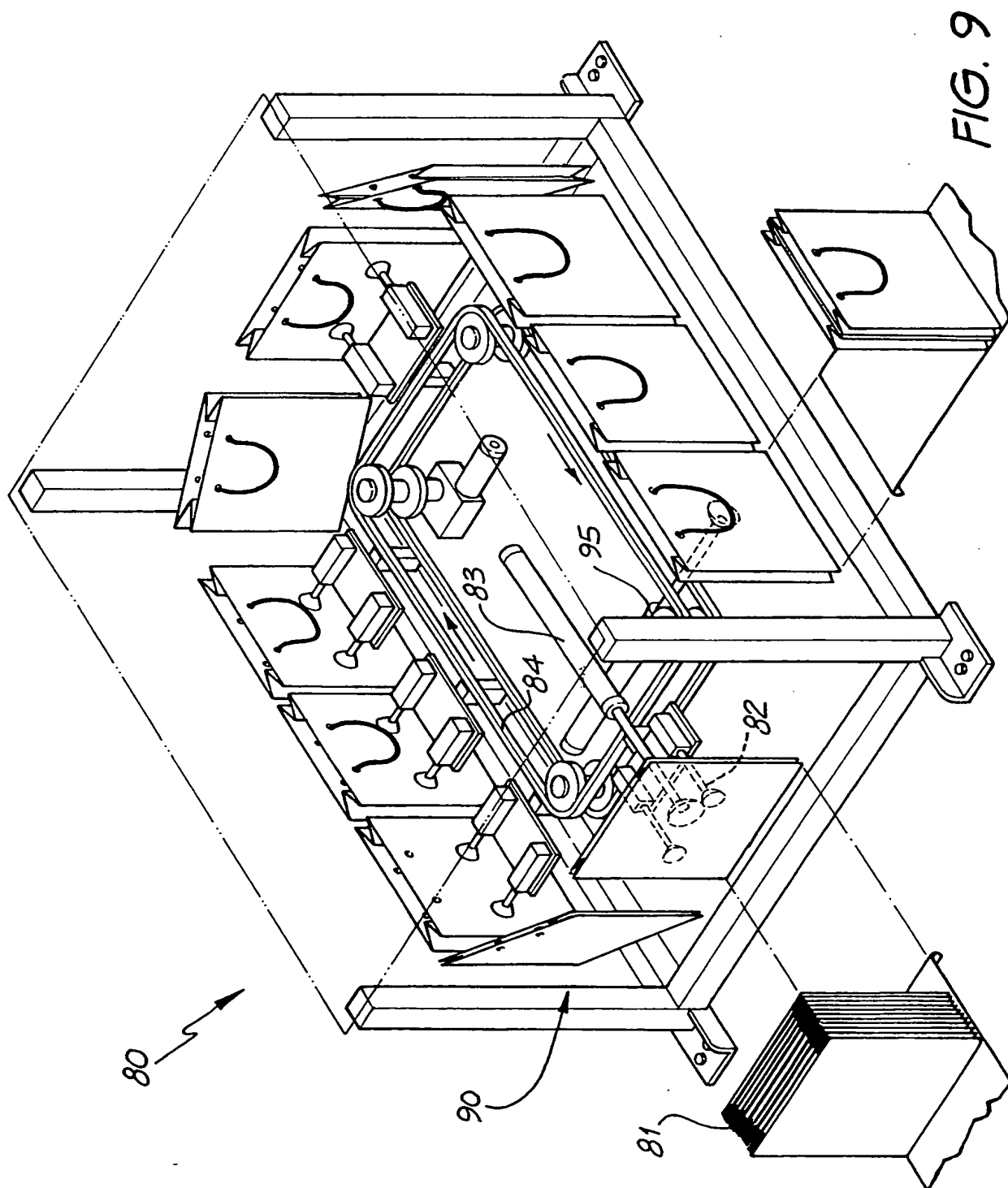
**FIG. 1**

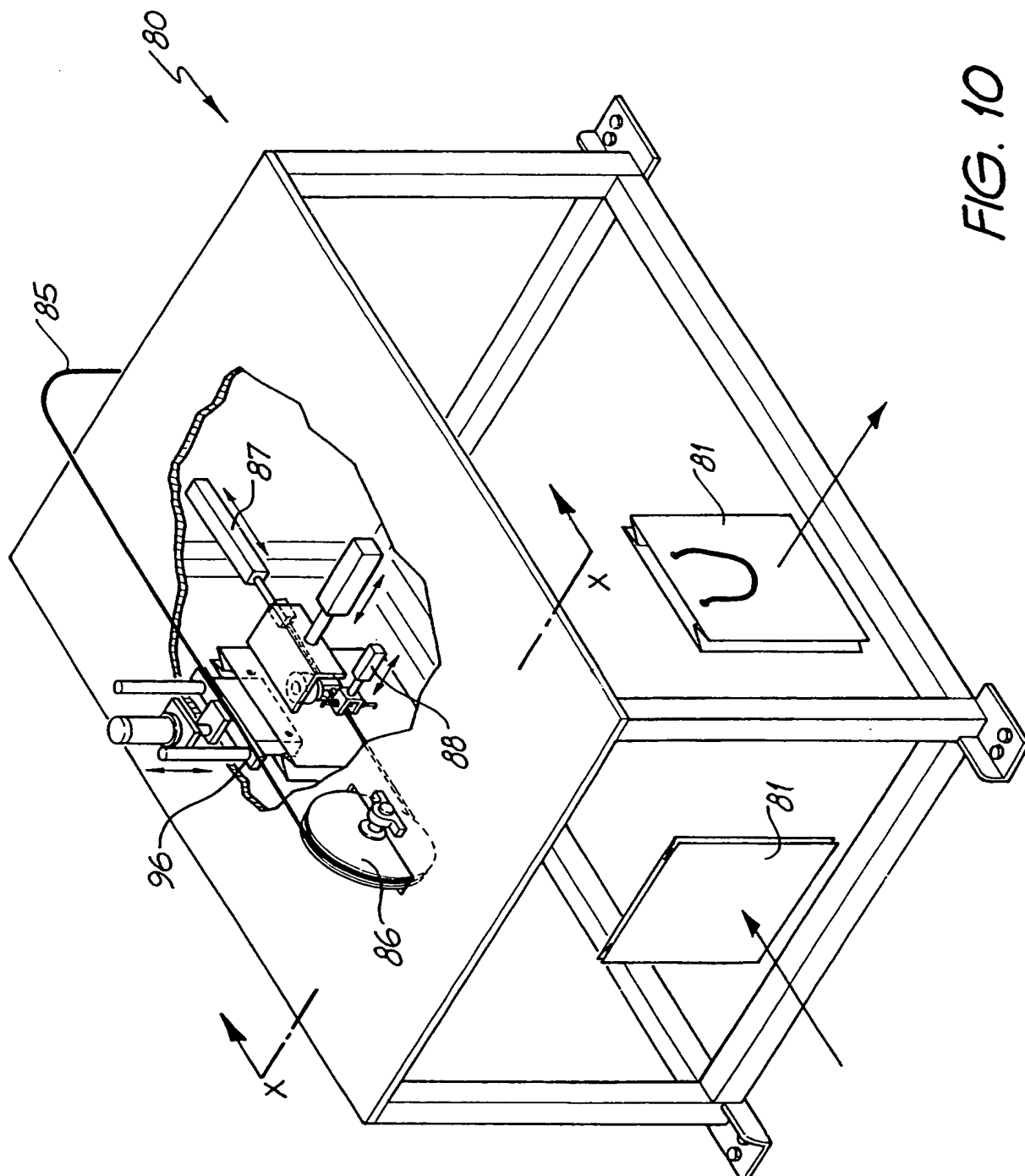
**FIG. 2**

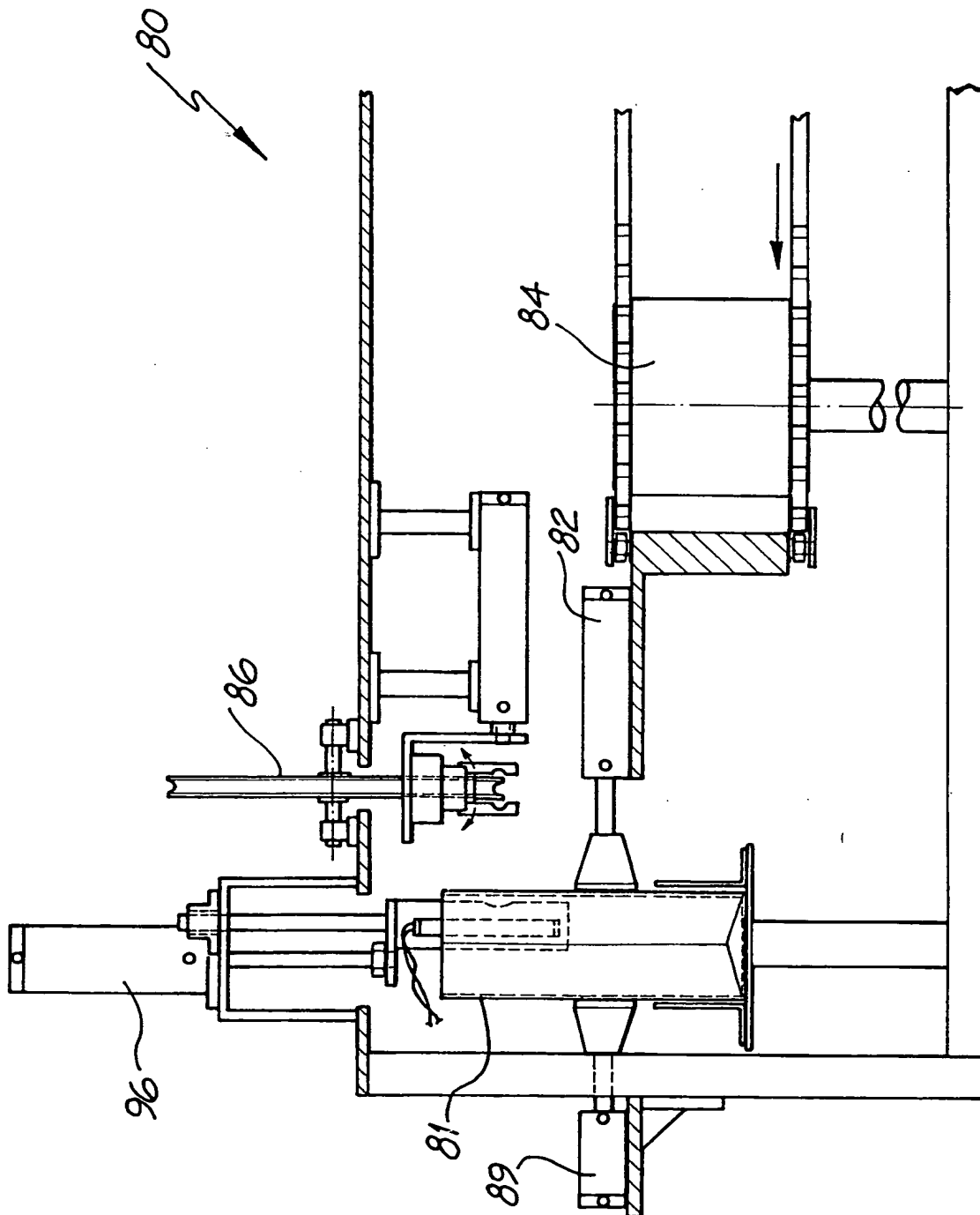
*FIG. 3**FIG. 4a**FIG. 4b*











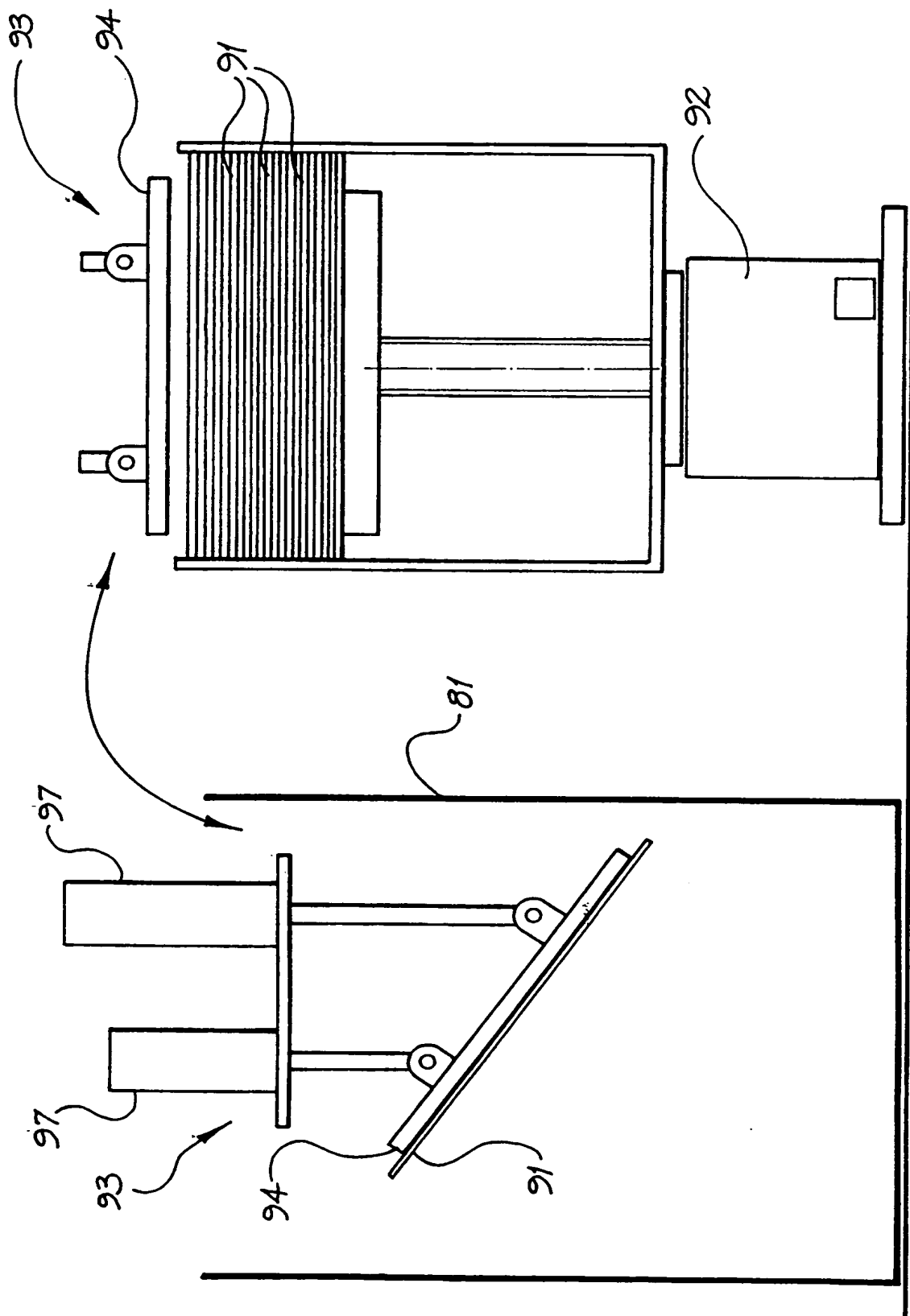


FIG. 12

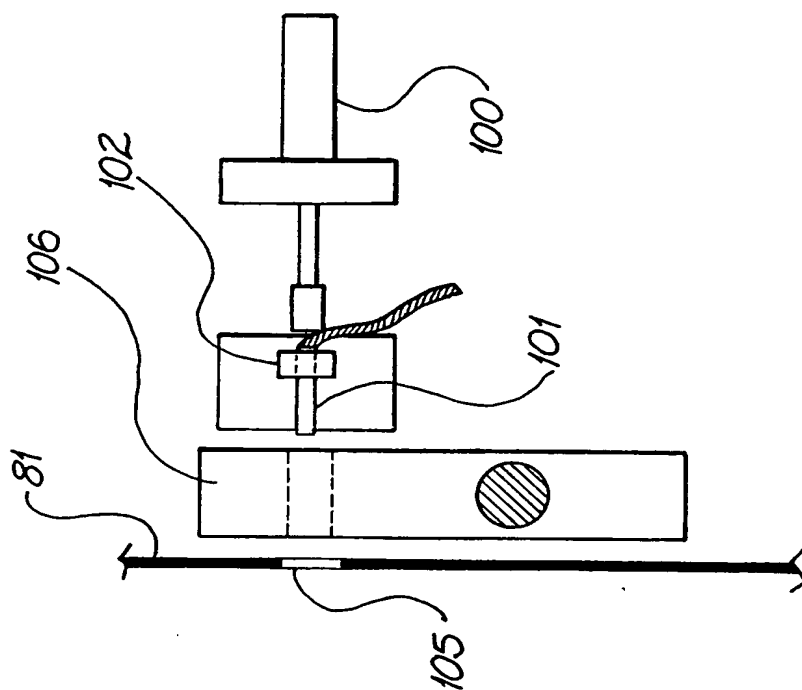


FIG. 14

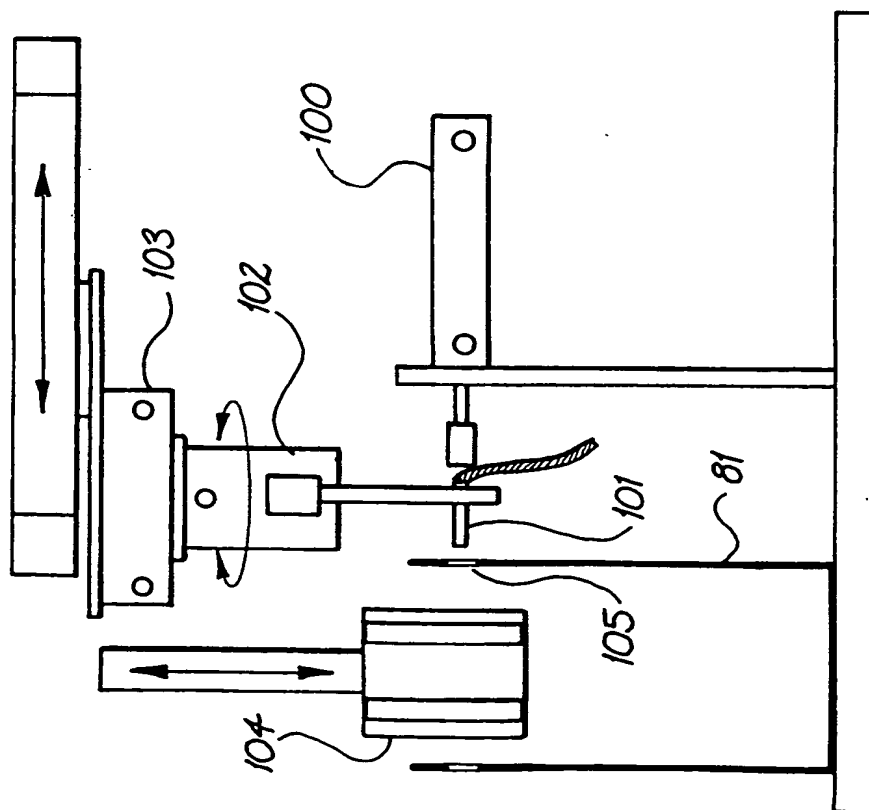
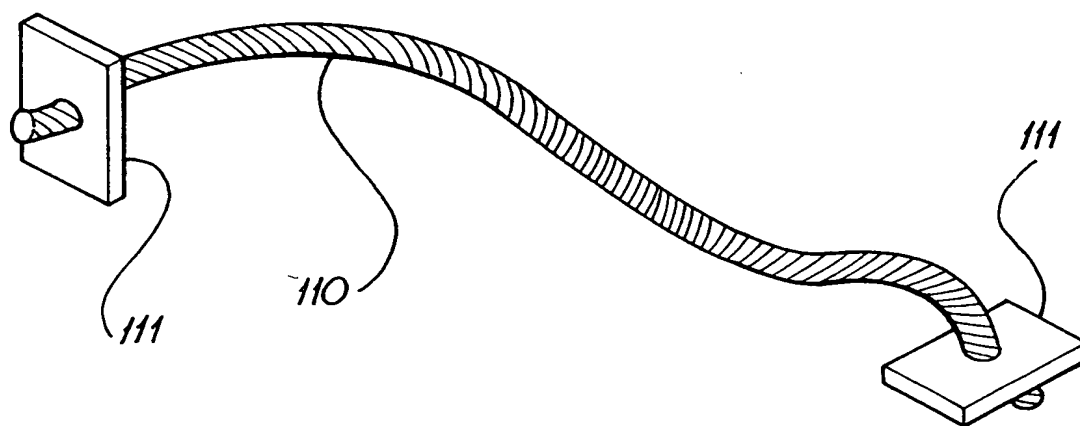


FIG. 13

*FIG. 15*

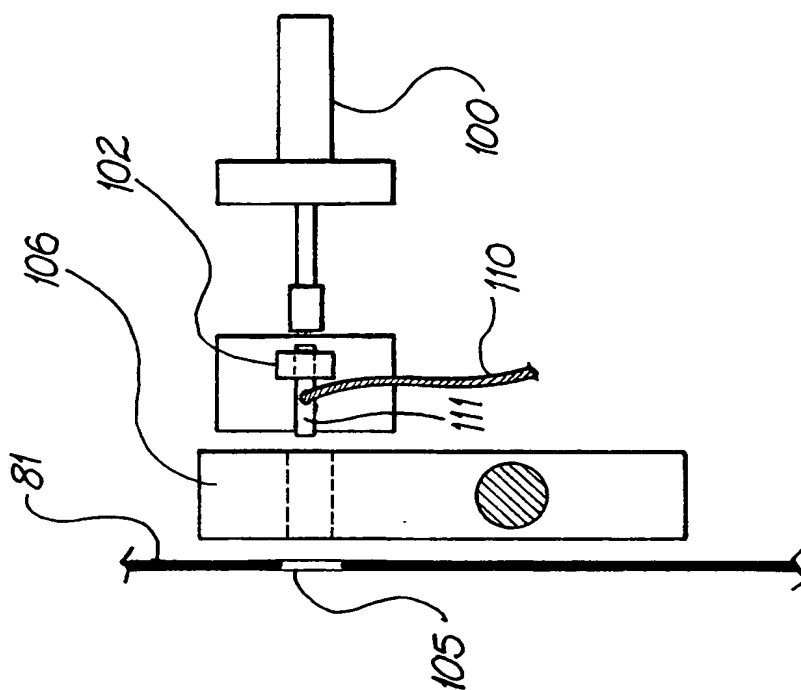


FIG. 17

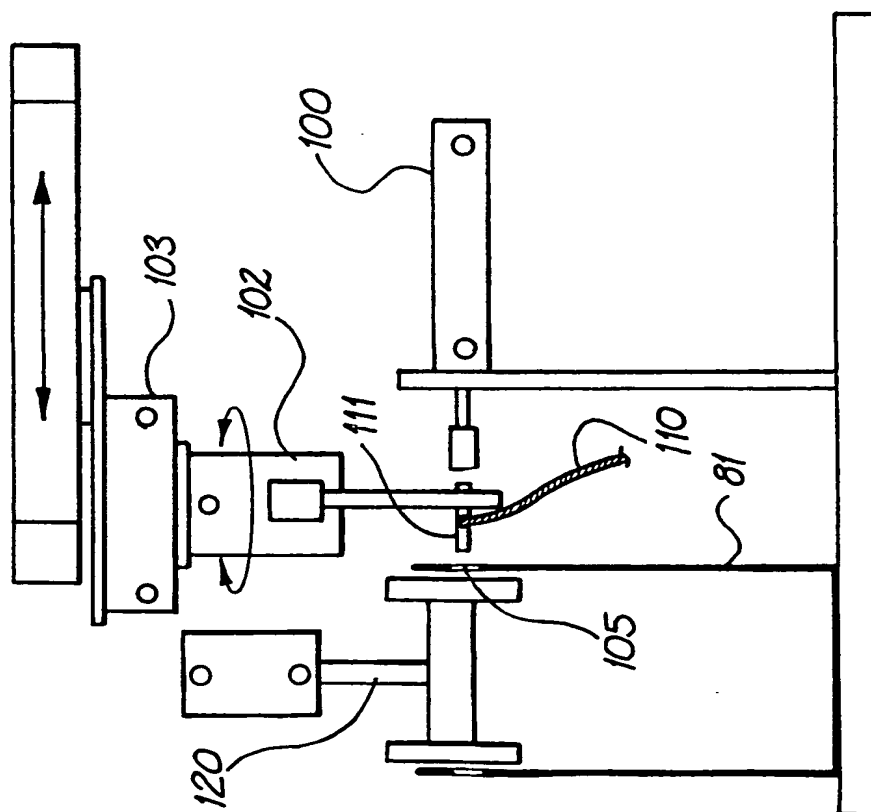


FIG. 16

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU 99/00308

A. CLASSIFICATION OF SUBJECT MATTER		
Int Cl ⁶ : B31B 1/86, B65B 61/14, B65D 25/28, 33/12		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) IPC : B31B 1/74, 1/86, 1/00, B65B 61/14, 61/00, B65D 25/28, 33/06, 33/12, 30/02		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched -		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) WPAT : HANDLE# OR CORD#; APERTURE# OR HOLE#; AGLET# OR BARB#		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4191232 A (SZABO) 4 March 1980 whole document	2, 4-11
X	EP 673848 A (ANGLO AQUARIUM PLANT COMPANY LIMITED) abstract, figure 2	2, 4-7, 10, 11
X	WO 92/02423 A (THE PROCTER AND GAMBLE COMPANY) 20 February 1992 figures 3-7, abstract	2, 4-7, 10, 11
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex		
<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>		
Date of the actual completion of the international search 8 June 1999		Date of mailing of the international search report 16 JUN 1999
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200 WODEN ACT 2606 AUSTRALIA Facsimile No.: (02) 6285 3929		Authorized officer JAGDISH WABLE Telephone No.: (02) 6283 2638

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU 99/00308

C (Continuation).

DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	US 5810242 A (CAHILL et al) 22 September 1998 figure 1	2, 4-11
A	AU 30841/97 A (HANDLE TEC PTY LTD) whole document	1-11

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU 99/00308

Box 1 Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

See supplementary page.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1-11

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU 99/00308

Box II continued

The international application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked to form a single general inventive concept. In coming to this conclusion the International Searching Authority has found that there are two inventions:

1. Claims 1-11 directed to a method of attaching a flexible cord handle to a bag using an obstruction member having a cavity which receives an aglet of the cord. It is considered that the obstruction member comprises a first "special technical feature".
2. Claims 12 and 13 directed to a method of attaching flexible cord handles to bags wherein the bag is maintained with a mouth in an open configuration by means of the application of a partial vacuum to at least one side wall of the bag. The application of the partial vacuum for attaching the cord to the bag is considered to comprise a second separate "special technical feature".
3. Claim 14 directed to a method of fitment of a cardboard base insert into a bag after opening of the bag mouth by means of the application of a partial vacuum to at least one side wall of the bag along a pathway whereafter the base insert is placed into the bag and affixed to the interior of the bottom of the bag by adhesive pre-applied to the bottom of the bag and/or to the underside of the base insert. The attachment of the insert to the bottom of the bag by an adhesive is considered as a third "special technical feature".

Since the above-mentioned groups of claims do not share any of the technical features identified, a "technical relationship" between the inventions, as defined in PCT rule 13.2 does not exist. Accordingly the international application does not relate to one invention or to a single inventive concept.

International application No.
PCT/AU 99/00308

Patent Document Cited in Search Report				Patent Family Member			
EP	673848	GB	2288354				
WO	92/02423	AU	84145/91	CN	1061005	EP	542873
		US	5095683	US	5222931		
AU	30841/97	WO	97/48550	EP	907499		